AUGUST, 1938

ELECTRICAL SOUTH

UNIVERSITY OF FLORIDA

HOTEL WINDSOR
JERRY R. CALDWELL, MGR
JACKSONVILLE.

FOR thirty-five years many of the same families have been repeating their visits to the Windsor. Here the Robert R. Meyer interests have continually catered to the precise requirements of their exclusive clientele. Now HUNTER'S latest 36-inch hotel type ceiling fans to provide an even distribution of air without objectionable drafts are replacing older models long in use.

HUNTER FAN & VENTILATING CO., Inc.

Factory: FULTON, N. Y.
General Sales Offices: Memphis, Sterick Bldg.
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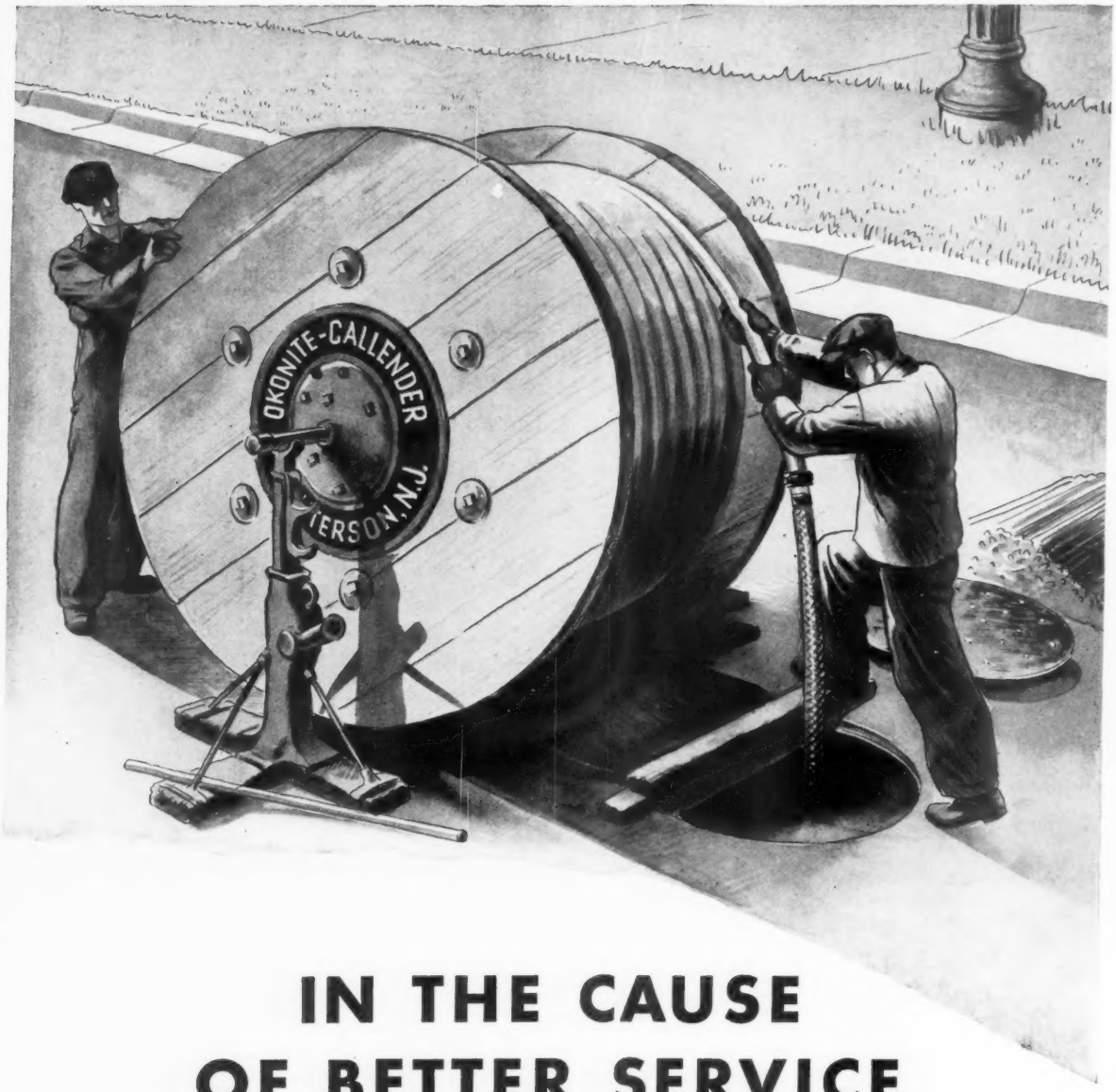
Sales Offices:
DALLAS, CHICAGO, PHILADELPHIA, ST. LOUIS, BOSTON, NEW ORLEANS, DETROIT, PITTSBURGH, CLEVELAND, WASHINGTON, ATLANTA

HUNTER Century



IN THE CAUSE OF BETTER SERVICE

Proper planning enables our Electric Utilities to provide their excellent service in time to meet the increasing public demand. In the same manner, the equipment manufacturers anticipate the demands of every part of the plant. This is accomplished by constant laboratory research and development of production equipment. Okonite-Callender is always ready with the right kind of cable to meet new service demands. Its facilities, too, are constantly functioning in the cause of Better Service.

THE OKONITE-CALLENDER CABLE CO., INC.

AN AFFILIATE OF THE OKONITE CO
Executive Office: Passaic, New Jersey

OKONITE QUALITY CANNOT BE WRITTEN INTO A SPECIFICATION

A non-tamperable fuse that is

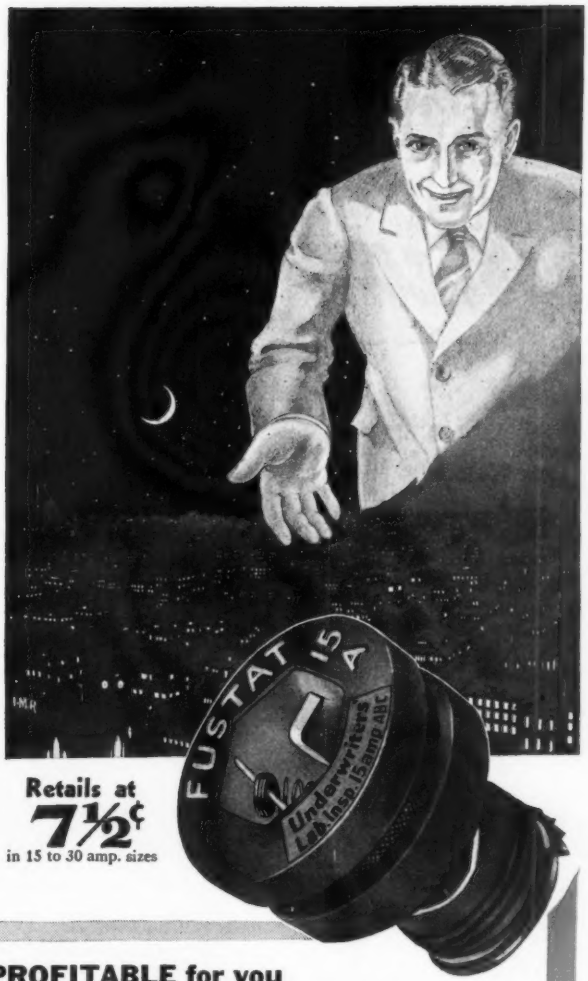
practical

for the user

and

profitable

for You!



Retails at **7½¢** in 15 to 30 amp. sizes

PRACTICAL for the user

because it stops needless blowing — and thus wipes out any excuse for tampering. The long time-lag of the fustat prevents it from blowing when motors start on washing machines, refrigerators and other such appliances. Yet it . . .

Protects flexible cords against burnout — in spite of long time-lag

The fustat contains a fuse. The ability of a fuse to protect against dangerous cord shorts or grounded sockets is well known. The fustat . . .

HOLDS like a *large* fuse when safety permits —

OPENS like a *small* fuse when safety demands.

Prevents circuits being robbed of protection

The fustat protects the user against anyone unwittingly creating a fire or injury hazard thru haphazard practices.

Unlike ordinary fuses a fustat cannot be replaced with a penny — or with a size too large to protect. In fact, sidetracking the fustat in any way is practically impossible without destroying the fustat or adapter and thereby showing the user that his protection is gone.

Retails at 7½¢

Fits present fuseholders

Thru the use of an inexpensive adapter, that locks in place, the fustat fits in any standard Edison base fuseholder.

On new jobs you can specify that panels, switches etc. be equipped with fustat bases.

PROFITABLE for you

because it permits adding more appliances to present circuits. The circuit can be loaded right to capacity with perfect safety — and without needless blows even when motors are started. This often saves the expense of a new circuit and helps close a sale.

Stops dangerous overloading of circuits

Since it is practically impossible to replace the fustat with anything but another fustat of the correct size — circuits cannot be loaded beyond safe capacity. If additional circuits are needed the user cannot readily side-step the issue by overloading the circuit at the sacrifice of safety.

Reduces loss of time and money on needless "blown-fuse" service calls

When a fuse blows on a starting current everybody loses. The user's service is off . . the service man may be dragged away from more profitable work . . . the full cost of the call may not be collected if the user kicks about paying it just to have a fuse changed . . . the whole electrical industry loses because needless interruptions of service are costly, annoying and unnecessary. The fustat stops this senseless waste by eliminating such "false-alarm" service calls.

It's just good business to sell, install and use Fustats

The FUSTAT

FOR FULL INFORMATION WRITE TO ANY OF THESE FIRMS

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C·S·P Means no more Burnouts from Short Circuits

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ONLY C·S·P TRANSFORMERS ARE:

1. Completely Self Protected against lightning — no fuses to replace.
2. Completely Self Protected against burnouts from short circuits.
3. Completely Self Protected against burnouts from overloads.

PLUS

4. Simple, low-cost installation; maintenance expense low after installation.

J-70123

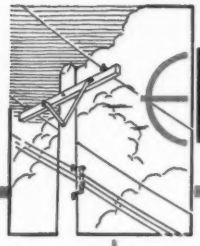
WESTINGHOUSE ELECTRIC

Westinghouse

Completely SELF PROTECTING TRANSFORMERS

AUGUST, 1938

Volume 18 No. 8



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Contents

Water Heater Promotion Establishes Record	5
Saturation Statistics Disclosed in Survey	8
Ventilation Campaign "Uses the User"	10
Kitchen Remodeling Is Their Specialty	13
The Industry's Fastest Growing Service	16
Lighting Will Help Sell the "Flying Market"	20
"Side Line" Solves Labor Turnover Problem	22
Electrostatic Filters Fill Industry Need	24
Automatic Power Factor Regulation—Part 2	26
Wound Core Distribution Transformers	29

Departments

Electrical Appliance Service	30
Motor Rewinding and Repair	32
Power Company News	34
Association Activities	36
Timely News of the Electrical Wholesalers	37
Timely News of the Electrical Manufacturers	38

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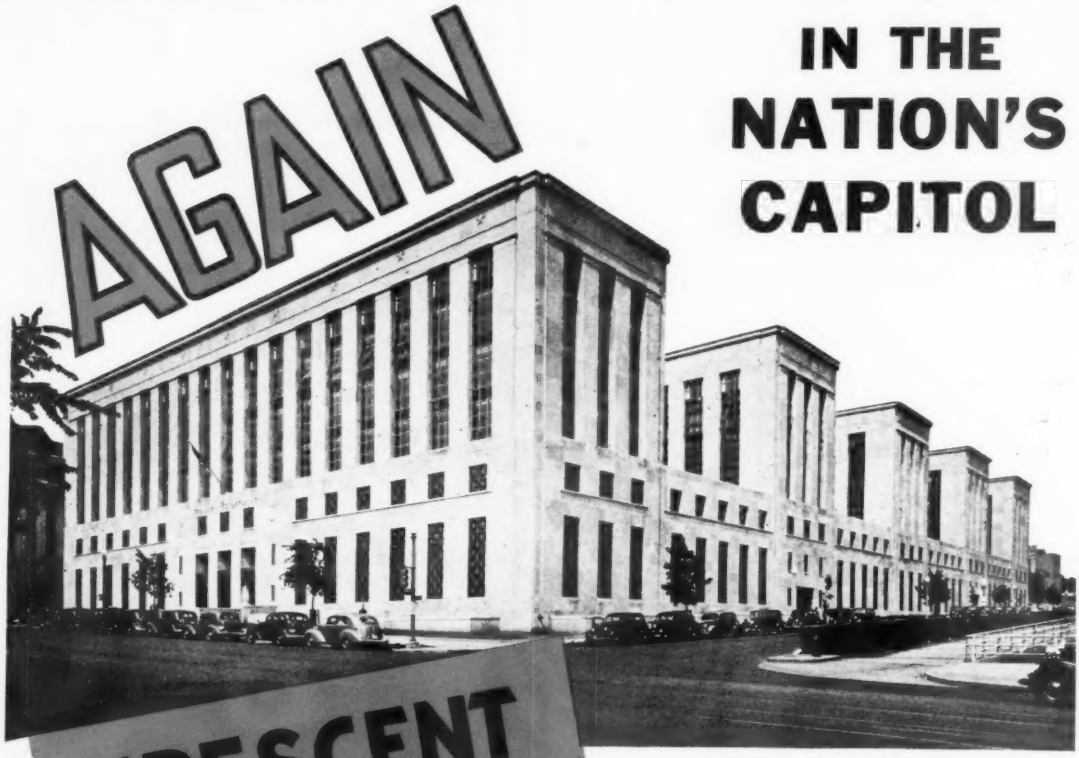
AGAIN IN THE NATION'S CAPITOL



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Florida Power Corporation's

Water Heater Promotion

Sells to one customer out of every thirteen

WHEN one out of every thirteen domestic customers of a power company buys an automatic storage type electric water heater within one year, while the national average for that same year is only one out of every 200 domestic customers, there's a lesson to be learned. The Florida Power Corporation, of St. Petersburg, established such a record. Mr. Giedd who was largely responsible for this successful promotion gives some of the details of the campaign in the following article.

By Rob't H. Giedd
New Business Manager
Florida Power Corporation

FLORIDA Power Corporation, which serves an average of 25,000 domestic customers on the west coast of Florida with headquarters at St. Petersburg, became imbued with the idea of putting special emphasis on electric water heater sales in February 1937. The fact that A. W. Higgins was named president of the company that same month very definitely accounts for the decision to build the company's load through volume selling of electric water heaters.

At that time normal, budgeted operations were progressing favorably and it appeared that 1937 was going to be a recovery year. Moreover, seven previous years of active promotion and selling of electric water heating service by dealers as well as the company led to the belief that in Florida's west coast territory, electric water heating was ready for volume selling.

2000 Heaters On Lines

Two thousand satisfied customers, sold prior to 1937, were proof of the popularity of the service. A survey of property conditions indicated a favorable market and the president of the company put the new business department to work on a plan to sell 1,500 electric water heaters in ninety days.

The period from April 19 through July 19 was established as the campaign period. The activity was to be known as "The One Way" campaign. The plan, briefly, required coordination of dealers, contractors, plumbers, distributors, manufacturers and employees of Florida Power Corporation to achieve a common objective. These factors determined the program development:

- Market Analysis
- Planned Program of Activity
- A Definite Sales Objective
- Advertising and Promotional Methods
- Organization of Man-power
- Supervisory Plan
- Accounting and Records Procedure

Power Co. Pushes Water Heater Sales

The Florida Power ... putting on a special ... the sale of electric w... in this section.

They are boosting ... convenience, safety ... ty of 24-hour fully a... mestic electric hot ... service.

The price is ex... for the value, and ... hot water heaters ... chased on terms ... day.

A special low ... arranged as an ... ment. For the fi... all over 50 KWH ... ly minimum of ... No extra meter ... quired, provided ... already using se... hold meter.

Consider the ... ing hot water ... day, for bathing ... cleaning, laund... and one other ... might find for ... cial low rate.

Anyone inte... chase of a hot ... vised to get i... Allen, Crawfo... live for this ...

$50,000 WATER HEATER SALES DRIVE OPENED

20 Carloads of Electrical Appliances Ordered, Workers Are Told

Enough electric water heaters to fill more than 20 freight cars, virtually a train load—have been ordered by electrical contractors, dealers and the Florida Power corporation for sale to customers on Florida's west coast, it was announced at a general sales conference held last night at the Yacht club.

More than 300 dealers, contractors and power corporation employes were present as the 90-day sales campaign was launched.

The total purchase of new electric water heaters for this territory aggregates more than $50,000, it was announced.

There are nearly 2,000 users of electric hot water service in St. Petersburg at present. The popularity of this appliance and its rapid adoption in modern homes has prompted the electrical dealers, contractors and the power company's merchandise department to co-operate in a special merchandise campaign for the next 90 days, the gathering was told.

In planning this sales effort one of the ideas was to keep fully employed the plumbers, electricians, sales people, service workers, office employes and the many allied trades needed to handle and install this volume of equipment.

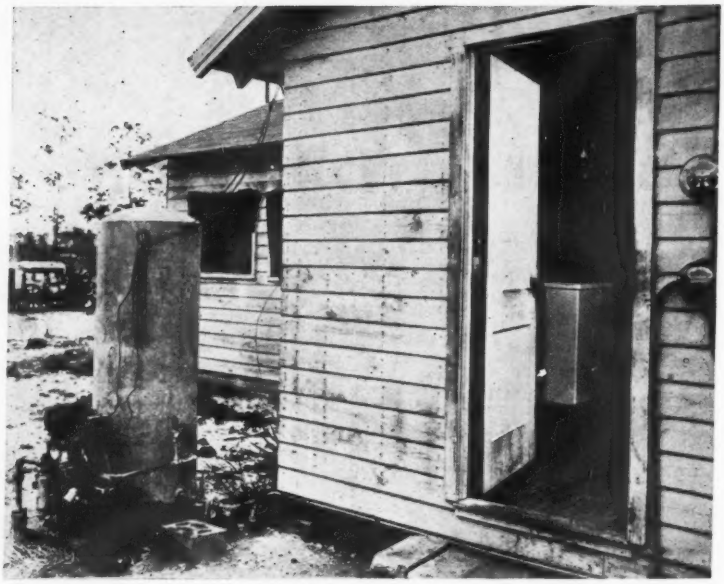
Typical newspaper publicity announcing the campaign . .

At this point the water heating sales program for the year was considered to be broken into three periods—the preparatory period—January 1-April 19; the campaign period, April 19-July 19; and the follow-up period, July 19 through the end of 1937.

Sales during the preparatory period ran ahead of budget expectations and resulted in 269 water heater sales. Then came "The One Way" Campaign.

Campaign Strictly Promotional

The entire campaign was built around promotion and canvassing for sales prospects. There were no special inducements offered during the campaign. The same prices, terms, free installation policy, no-



Many low-income customers were sold electric water heaters in the Florida campaign. This rural customer is proud of pump and heater . .

trade-in policy and credit restrictions in effect prior to the campaign were continued, but not enlarged upon in any way.

Opening the activity with employee and dealer meetings, the entire program was presented in a simple, six-page mimeographed prospectus. The public was informed through announcement by newspaper advertisements, bumper cards on company and dealer vehicles, and truck signs. More specifically, the first of a series of three direct mail letters was on its way to every domestic customer not using an electric water heater at the time the campaign opened. Employees and dealers wore large lapel badges with the statement *"Ask Me About The One Way."*

Bonus Payments for All Tips

Employees were asked to send in tip cards. Five cents was paid for every tip card turned in, whether a good prospect or not, providing the employee certified that he had talked to the customer about electric water heating service! To supplement this effort, non-sales employees from various departments gave half-days during part of each week to making a complete customer survey so that full coverage could be obtained. Many employees late in the campaign actually took out order books and closed sales.

As a result of constant plugging the total sales for the 90-day period were 1,354—short of the goal by 146, but a splendid record. These few figures indicate the amount of effort and show the general results of the three months activity:

Total number of electric water heaters sold	1,354
Number of calls made...	17,850
Number of prospects sent in by employees	10,013
Number of good prospects obtained for later sale (Not signed up during campaign)	363
Number of regular domestic salesman	13
Number of other employees handling sales on part time basis	25
Number of dealers participating in campaign ...	20
Number of dealer sales reported	180
Number of competitive heaters replaced	895
Total employee personnel during campaign	475
Percentage of employees responsible for direct sales	32%
Percentage of employees submitting tips	70%

A campaign of such proportions had a stimulating effect upon general business in the territory. Businessmen, encouraged to know that a summer business market prevailed in Florida, went after sales more aggressively. The Company's sales of ranges and other appliances increased beyond expectations due to the effectiveness of the campaign activity.

The follow-up period presented many problems. A number of orders had been taken for fall delivery, and some buyers changed their minds and had to be re-sold on the wisdom of their purchases.

Biggest Water Heater Year

Best feature was the fact that the campaign left some three hundred prospects who were considering purchase later in the year but did not sign up during the campaign. Direct sales efforts resulted in 292 sales for the follow-up period, or a total of 1,915 sales for 1937. This was by far the greatest year of electric water heater merchandising in the history of the company!

The following statistics on the results and estimated value of selling 1,915 electric water heaters in 1937 should convince anyone that the effort was worthwhile.

Estimated Annual Consumption, 3,830,000 kwh. (Annual consumption per customer of 2000 kwh per year was used in arriving at the above total.)

Estimated Annual Revenue, $57,-450.

Total Installation Expense Involved, $49,790. (Company contribution up to August 23, 1937, paid

Florida Power Corporation's Water Heating Rate

Since April 1, 1937, the Florida Power Corp. has offered a most attractive water heating service rate.

Established as an "off-peak" rate, it includes an initial block of 50 kwh at 2c per kwh, with all energy in excess of 50 kwh at 1c per kwh. The monthly minimum charge is $1.

The rate in effect previous to April 1, 1937, was similar but included a monthly minimum charge based on the kw capacity of the water heater.

Both the old and new schedules reserve the right to connect a time switch and to alter its setting from time to time so that the "on-period" of the heaters conforms to the "off-peak" period of the system.

Nature of Territory Served by Florida Power Corporation

ALTHOUGH the territory served by Florida Power Corporation extends over 12,000 square miles, the greatest population center is in the extreme southern part of the area including St. Petersburg, Clearwater and Tarpon Springs. The population in these three districts—all in Pinellas County—is more than half the total population of the entire territory.

St. Petersburg, the largest community, is a popular seasonal tourist town. In recent winters as many as 250,000 winter visitors have spent part or all of the season in this resort city and the number of permanent residents is increasing rapidly.

Clearwater is also a tourist town and is the center of the citrus belt of Pinellas County. Several large citrus packing plants are in this area. Tarpon Springs, at the north end of Pinellas County, is the center of the world's largest sponge market.

General farming and extensive cattle raising comprise the most important features of most of the territory outside of the extreme southern section. Large phosphate deposits near Dunnellon are mined for shipment to foreign countries. Near the region of Ocala and northward, tung nut trees are being raised in large scale operations.

The Company maintains almost as many miles of transmission lines as it does distribution lines due to the widespread nature of the area served.

to contractors, $43,950. Installation expense paid by customer to contractor, $5,840.)

Estimated Annual Increased Consumption per Domestic Customer of Entire Florida Power Corp. System Resulting from Electric Water Heater Sales in 1937, 150 kwh. (Allowance made for seasonal cutomers.)

Sales Expense per Unit of Water Heater Sale, $20. (Includes all commissions, bonuses, tips and advertising and promotional expense.)

Percentage of Saturation of Domestic Electric Water Heaters Sold in Florida Power Corp. Territory in 1937, 7.5%.

Average Annual Kilowatt-hour Consumption per Domestic Customer:

End of 1936	836 kwh
End of 1937	920 kwh
End of Feb., 1938	961 kwh
End of June, 1938	1005 kwh

Analyzing the results at the close of the year, these factors largely determined the success of the year's efforts to sell electric water heating:

1. Continuous executive support and leadership.
2. Cooperation of dealers and their sales forces.
3. An interest-building slogan widely promulgated.
4. Coordinated promotional plans: newspaper advertising, direct mail advertising; tie-in signs and promotional stunts; and campaign news letter.
5. Wholehearted employee interest and support: compensating tip card system, and prize contests and direct sale compensation plan.
6. Prior efforts to gain public acceptance.
7. Free installation policy stressed effectively.
8. The economical water heating rate.
9. Inspirational employee and dealer meetings.
10. Mass contact and thorough coverage.

Complete stories could be written about each of these success factors. They represent collectively the steps necessary to carry on an active promotional campaign by an electric company. Each factor is related to the other and, in our opinion, serves a definite purpose in rounding out such an activity.

Much of the success of this intensive water heater sales promotional campaign must be attributed to the splendid advertising and publicity material designed for it.

Employees and independent appliance dealers and their salesmen were kept informed of activities through a campaign newspaper, two copies of which are shown here.

The public was informed through newspaper advertisements, bumper and truck signs, direct mail letters, and employee contacts.

Rural Projects Survey Completed by REA

FARMERS to whom REA loans are bringing electric power for the first time are quick to form new electrical habits, according to a survey published in the July issue of the *Rural Electrification News*.

The survey, covering 46 REA-financed projects on which the average time of service per customer was only 8.4 months, indicates that within a very short time farmers learn to use electricity for far more than lights. Seventeen thousand one hundred residential customers, representing 63.5 percent of the total number on the projects, checked on the survey card each appliance in their possession. The control figures indicate clearly that the sample is representative of large, medium-sized, and small users, and that it is geographically well scattered.

The accompanying tabulation shows the percentage of saturation for each of the 16 household appliances and 12 farm appliances listed on the survey card.

As will be noted, only 3 per cent of the customers reported having no electrical appliances other than lighting equipment.

First, in the average farm family, a house-current radio is installed, bringing entertainment and more news of the world as well as of crop conditions. Next, the farm wife banishes the sad-iron in favor of a lighter electric iron which stays hot. Third, the wash-tub gives way to the washing machine. Then the electric refrigerator comes in. Electric toasters, water pumps, vacuum cleaners, hot plates, small motors, and poultry lighting equipment follow, in the order named, to make farm life more pleasant and profitable.

The subordinate position taken by farm appliances with the customers reporting reflects an urgent need for farm-wise merchandising organization. The farmer has had little opportunity to express his desire for many labor-saving devices because manufacturers and distributors have not given him an opportunity actually to see their products. This market is rapidly expanding and holds great promise.

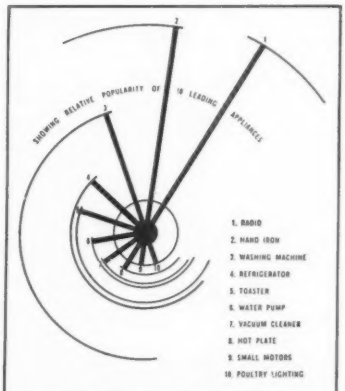
New electric lines, the survey reveals, provide big new markets for industry. The average farmer, during the first few months he has electricity, spends about $180 for appliances. This expenditure is in addition to the outlay for house wiring, which is anywhere from $50 to $300.

Small and inexpensive appliances sell rapidly on all projects throughout the country. Approximately 86 per cent of the new customers buy electric radios. An appreciable percentage of the customers also purchase more costly equipment; for example, 26 per cent, it is estimated, acquire electric refrigerators soon after obtaining electric service.

Striking regional variations in the saturation of all appliances except the universally popular radio are indicated by the survey. Electric washing machines are one of the most commonly purchased appliances in the North, the saturation figure never being less than 45 per cent and rising as high as 92 per cent on one project, while half of the Southern projects have a washing machine saturation of 5 per cent or less.

The electric refrigerator, on the other hand, finds its best market on the Southern projects. Among the first 12 projects ranked according to refrigeration, only two were Northern projects, one in Illinois, the other in Nebraska. Ohio projects have been the most liberal purchasers of vacuum cleaners. The electric range has found striking success in the TVA area, where two projects have a range saturation exceeding 24 per cent.

The *Rural Electrification News* points out that "large numbers of customers were connected after the buying season for refrigerators and ranges, so that the effect of their buying power is not fully registered by the survey. The number of new farm and rural electric customers has been mounting at the rate of 200,000 for each of the past two years, and with between five and six million farmers still without electric service, this number bids fair to increase at this rate for some time."



HOW POWER SERVES FARMERS ON 46 REA PROJECTS

AVERAGE TIME OF SERVICE PER CUSTOMER—8.4 MONTHS

APPLIANCE SATURATION ON 46 REA PROJECTS

Average length of service per customer—8.4 months

Household Appliances	Percent
Coffee maker	6
Food mixer	3
Hot plate	12
Iron	91
Ironer	2
Radio	86
Range	5
Refrigerator	26
Roaster	1
Sewing machine	2
Toaster	24
Vacuum cleaner	16
Waffle iron	9
Washing machine	47
Water heater	2
Water pump	17

Farm Appliances	Percent
Brooder	1
Corn sheller	1
Cream separator	5
Dairy water heater	*
Ensilage cutter	*
Feed grinder	*
Milk cooler	*
Milking machine	2
Motor, up to 1 hp.	9
Motor, 1 hp. and over	2
Poultry lighting	9
Walk-in cooler	*
No appliance	3

*Less than 1 percent

Merchandising

IN THIS SECTION:
Ventilation Promotion "Uses the User"
An Unusual Kitchen Equipment Firm
Water Heating—A Fast-Growing Service

Low Cooking Cost Theme For Range Promotion . .

ENCOURAGED by the success of the current national advertising and sales promotion program, NEMA electric range manufacturers will carry their activities into the Fall with a special drive during October, designated as "Discovery Month."

A national survey reveals that non-owners of electric ranges have the idea that, on the average, it costs twice as much to operate an electric range as is actually the case. The theme, therefore, will be "See For Yourself That Electric Cooking Costs ½ as Much as You Think."

The activity will be carried on through the Modern Kitchen Bureau, with quotas set up for each regional director.

Sales managers of NEMA member companies are also setting up quotas, and the industry expects to exceed its goal of 1,000 range sales a day during the month.

Dealers and utilities were informed of the campaign by a jumbo telegram the middle of July, which will be followed by a wide distribution of plan books covering the complete activity. A series of broadcasts will be mailed to 30,000 utilities and dealers during August and September. Other promotional material includes a retail salesmen's booklet, window banners, display cards, meal planning book and a series of newspaper mats, all stressing low cost.

A national survey among range users recently revealed that the average cost of cooking electrically is $2.30 a month.

National Promotion Scheduled For Washers and Ironers . . .

Preparations for the home laundering equipment industry's first annual National Washer-Ironer Week October 23-29 are off to a flying start following a rally of more than 100 industry leaders in Chicago, where the advertising material was displayed and W. Neal Gallagher, of Newton, Iowa, president of the newly rechristened American Washer and Ironer Manufacturers' Association, (formerly American Washing Machine Manufacturers' Association) announced plans to enlist 25,000 dealers and to stage displays in more than 10,000 windows.

American housewives' weekly clothesline, estimating 100 feet of garments and linens to the average washer - owning family, would stretch nine times around the world with enough left over to flutter from Moscow to Miami, President Gallagher declared, and the industry hopes to double this Gargantuan rope by 1944.

"For family washing, there's no place like home," the Association slogan, will be the drive war-cry for the October promotion week.

Utilities, electrical councils, industry suppliers and manufacturers of such affiliated products as soaps and other laundering adjuncts will be enlisted in country-wide support of the event.

Chicago will be the scene in January, 1939, of the Association's first annual national washer-ironer show, when manufacturers will cooperate in the simultaneous unveiling of the season's new models.

Winners in Electric Range Window Display Contest

Contrast between obsolete and modern kitchens was the principal feature in the many window displays entered in the contest conducted recently by the Modern Kitchen Bureau.

First prize winners in the three groups are shown here. At left, above, is the display entered by Puget Sound Power and Light Co. which won first place in the utility group; first prize winner in the department store group, won by H. L. Stiff Furn. Co., of Salem Ore., is shown below. At right, above, is the entry of Henry Levy Co., Santa Barbara Cal., first prize winner in the dealer group.

Only winners from the South were Birmingham Electric Co., which won third place in utility group, and Vandever Dry Goods Co., of Tulsa, Okla., second prize winner among department stores.

Attic Ventilation Sales

Sales promotion using satisfied customers builds sales with chain-letter rapidity.

By Ruel McDaniel

THE value of satisfied customers in the sale of attic ventilation equipment is well demonstrated by the experience of the West Texas Utilities Company, which maintains its headquarters at Abilene, Texas.

The company sold its first attic ventilation system in 1935. The customer was not only satisfied but enthusiastic and gladly wrote the company a most complimentary letter expressing his satisfaction. With this letter and photographs of the customer's home, the company's salesmen began to promote this type of equipment in earnest and, at the close of 1936, had installed eighteen more units.

Following the same plan, the company obtained laudatory letters from most of these users, who were equally enthusiastic about their cooling systems. These letters, together with photographs of the homes, were utilized most successfully in an advertising campaign conducted in local newspapers.

With chain-letter rapidity sales have increased, exceeding two hundred in the past year.

"Because attic ventilation is new, we find that you cannot talk too much about your satisfied customers," explains H. H. Lamb, district sales manager. "We advertise them, and our salesmen talk about them. We expect our sales this year to exceed five hundred units."

In advertising attic ventilation, the company runs one or more actual photographs of well-known homes in which attic ventilation has been installed. The caption of each picture gives the name of the home owner, his address and a brief statement from him, as to what he thinks of the installation.

"A customer can't talk down that sort of argument," Mr. Lamb points out. "These advertisements bring us inquiries; and still more important, they pave the way for the salesman's call. When a salesman mentions certain installations, likely as not the customer will reply. 'Yes, I read about that in the paper'."

Each home featured is a residence in the town where the advertisement appears; and usually it is a home of some citizen known by most people in that town.

Salesmen work on commission, the normal routine being on the same basis as in selling other electrical appliances.

Each salesman has a sales book which follows out the company's idea of using the user to sell others. The book is a loose-leaf volume, attractively bound. It contains features of the manufacturers' catalogs—the sections which explain in elementary terms the easily-understood principals of attic ventilation. The section, incidentally, was designed to interest women more than men and the text was so selected.

The salesman turns through this section of the book with the prospect, pointing out elementary features in a manner that any average woman can understand.

This section is followed by a series of photographs of local installations. Most of the photographs show features of the ventilation systems such as grills as well as general views of the homes.

Opposite many of the pictures is a letter of praise from the owner of the home pictured. And a lot of these letters are signed by the housewife, rather than the husband, thus furthering the appeal to the woman prospect.

Although the company has made several commercial installations, it concentrates its sales effort on the better class of homes in each town in which it operates.

It sells on terms, usually with a cash payment of 20 per cent, the balance payable monthly within two years. Many of the sales thus far have been for cash. The customary appliance carrying charge is added to the price of the installation.

Salesmen call back on their customers to obtain letters of endorsement and to ask the customers' co-operation in finding new prospects. Few cold canvass calls are required as the salesmen are kept busy following up leads obtained from customers or received as a result of newspaper advertising.

"It is surprising how many installations customers have actually sold for us," Mr. Lamb declares. "Just the other day I was standing in front of the building talking to a customer who had bought a ventilator system only a few weeks before. He saw a friend of his walking across the street toward

Comfort Cooling System Praised In These Homes After Nearly A Year's Test

Attic Ventilation Drives Heat Out Of Entire House

West Texas Utilities Company

The sales policy of "using the user" is not new in the electrical appliance field but the West Texas Utilities Co. finds it unusually effective in the attic ventilation field. Advertisements such as this one, emphasizing satisfactory installations in the homes of well-known people, have increased sales with chain-letter rapidity.

Enclosed Switches

'S THE NEW "R.B.A." THEY'RE TALKING ABOUT

Here's a NEW COMPACT Trumbull heavy duty industrial switch line with all the time-tested features of the "R. B.", which it supersedes . . . PLUS many outstanding improvements.

The entire switch mechanism, for example, is mounted on a saddle . . . . removable as a unit from the front of the box.

That saves time in installation and wiring . . . simplifies maintenance and replacement.

And see how Trumbull has combined the advantages of both side and front operation.

That new "front-side" operating handle on "R.B.A." gives you regular side hinged covers and at the same time permits close ganging.

New heavy cover catch and releasable interlock are additional safety and convenience features.

Of course you'll find "R.B.A." equipped with the famous "Vystipe" fuse clamps that prevent heating at fuse contacts . . with silver plated roll contacts receding into arc-quenching chambers in the rugged, non-carbonizing moulded base . . and with many other proved Trumbull quality features.

Circular Number 300 and the August issue of Trumbull Cheer still further describe and illustrate this new "R.B.A." line If you have not received your copies please write us. "Cheer" now has 38,000 readers

The TRUMBULL ELECTRIC MFG. CO.

PLAINVILLE — A GENERAL ELECTRIC ORGANIZATION — CONNECTICUT

NEW YORK • CHICAGO • BOSTON • DETROIT • ATLANTA • PHILADELPHIA • LUDLOW • NASHVILLE • SAN FRANCISCO • LOS ANGELES • SEATTLE

us. He called him over. 'Say, John', he opened, 'Have you seen that new attic ventilator Lamb here is selling? . . . Well, you'd better talk to him. What's it like? . . Well, did you ever go out on the bank of a rippling brook on a hot July afternoon and take off your hat and just sprawl under the shade of a tree, with the wind blowing across the brook and over you? That's what it feels like in your home, any time of the day or night, with one of these ventilators working'. His friend bought one that day!"

The company cooperates closely with local electrical and other contractors who handle attic ventilators. Its engineering department aids them in determining the location for grills, louvers and in other engineering specifications necessary to assure a satisfactory installation.

"It is just as important to us that the dealer-contractor's installation is satisfactory as for ours to be," Mr. Lamb emphasizes. "Every satisfied user helps everybody to sell others; and, adversely, every dissatisfied customer hinders sales for all, irrespective of who made the installation."

An "Old Shirt Sale" Moves Washers In Quantities . .

WHEN E. W. Wilcox of Tulsa, Okla., put on a shirt with a frayed collar one morning a short time ago, he did not know that that circumstance would result in a sales idea destined to move large quantities of washing machines, but it did.

Mr. Wilcox is manager of the appliance department of the Clark-Darland Hardware Company. He had a stock of washing machines that had been moving at the rate of about two a month for six months. The morning Mr. Wilcox put on the shirt with the frayed collar, the factory representative was in Tulsa so the two of them and a salesman went out to get a cup of coffee and talk things over.

The conversation soon reached the point where the tric was stumped for an idea to put life into washer sales, but at that point the salesman said, "Say, Wilcox, did you know you put on a shirt with a frayed collar?"

"An old shirt," said Wilcox. "Now, there's an idea. We can show people that this washer won't tear up shirts. Better still, we'll have an old shirt sale. Instead of making it just an ordinary sale we'll sell this $84.50 washer for $59.95 and an old shirt."

They stretched a clothes line in the sales room, hung some old shirts on the line and the sale got under way. In 18 days, they sold 17 washers.

The operator of a chain of appliance stores in St. Louis came through Tulsa during the sale and dropped in on Mr. Wilcox. The old shirt sale idea had just been born, but the St. Louis operator liked it so much that he wired the factory for 12 carloads of washers and wired his store managers to make preparations for the sale. Mr. Wilcox says he later learned it was one of the year's biggest appliance sales events in St. Louis.

Woodruff Salesmen Now Skilled Cooks . . . . .

Twelve men and one saleslady in the electrical appliance department of Woodruff's, Knoxville, Tenn., put on long butcher-like white aprons recently and learned to cook really tempting meals on an electric range.

It was a part of the special training given them for their jobs of selling electrical merchandise, particularly electric ranges. The store provided all the different kinds of food used.

"We find that knowing how to cook makes a better salesman," said A. J. Winegar, manager of the electrical appliance department. "They know better just what their product can do and can prove their sales talk points, if necessary, by demonstrations.

"A salesman might have learned all the points about an electric range. He might tell a customer how fast it would cook, the economy of it, how much heat would be required, and various other features—but often a housewife wants to know details about cooking some particular food. As the salesman himself has learned to cook on the electric range which he is trying to sell he can tell the customer just what it will do, and answer other questions more convincingly than otherwise.

"We find that such training is entirely justified. Facts that a salesman has learned in cooking may clinch a sale with a prospect. It gives him more confidence, too.

"We are now planning to hold a school for training our salesmen in demonstrating electrical refrigerators," reports Mr. Winegar.

At the close of the cooking school for Woodruff's electrical salesmen, an examination was conducted in what had been taught them. First prize for the best examination paper went to Edward F. Ackerman and second prize to C. R. Carr.

Cooking training has proved to be a most effective sales aid for the electrical appliance department of Woodruff's at Knoxville . . . .

Kitchen Remodeling Is Their Specialty

By Fred E. Kunkel

DEVOTED entirely to the sale of modern kitchens and their accessories is the unique Kitchen Equipment Company, of Washington, D. C., operated by William S. Graham. With a most unusual show room which includes five model kitchens—of types to meet almost every need—the firm is developing a splendid business in the field of kitchen remodeling and new installations.

"We have been in business for twelve years, and lately have been doing a great deal of kitchen remodeling and modernizing, until it has become quite a business with us," explains Mr. Graham. "We never did much remodeling work until in 1937, but more kitchen remodeling was done in Washington in that year than ever before in its history.

"There has been so much publicity given to the modern electric kitchen in the past year, that public acceptance has increased rapidly. As a result, I believe that there is more opportunity for profitable business in the kitchen equipment field than in any other branch of the home furnishings industry. We have made a great many complete installations in the better residences and in apartment buildings.

"We decided recently to open a modern showroom and the response of the public has been very gratifying. Although our model show rooms attract a large number of people, we have found that their greatest value is in the opportunity they provide for architects and their clients to view actual installations demonstrating the wide range of equipment and floor plans available.

"Our specialty has always been the better class of kitchen cabinets and it is still our biggest item, but in connection with our kitchen planning service department, which includes two graduate architects and a woman decorator in charge, we are now selling everything for the kitchen sink, range, refrigerator, water heater, and dish water.

"We have set up these several types of kitchens so that people could better visualize their requirements which is sometimes difficult to do from pictures as sketches alone. And it is difficult for the average person to understand from catalogs and from architects' drawings just exactly what they are going to get for their money.

"In these model rooms we have tried to show all kinds of wood and metal cabinets, and all different types of sinks. We have had the greatest success with the linoleum continuous sink and counter top, made to fit any size sink and work surface.

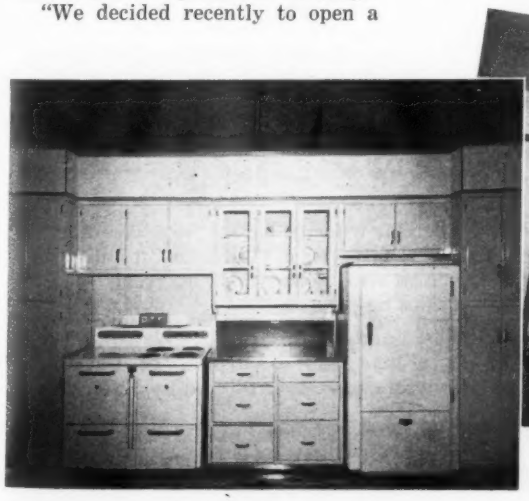
"This linoleum comes in all different colors, thus permitting an artistic color scheme in any kitchen by the use of color harmony in floor and counter top, and in the color of the handles and drawer pulls on the cabinets.

"Another feature is that when we use linoleum we achieve quietness and resiliency which is not obtained from any other type of surface. Of course, some prospects prefer a hard surface for food preparation, so we also offer stainless steel, stone and wood.

"We have encouraged architects to send their clients to us and to let us work out the details of the kitchen equipment, whether they

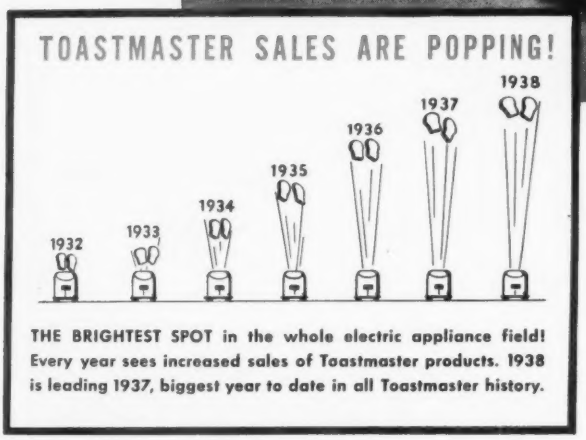
(*Continued on page* 46)

Kitchen Equipment Co., of Washington, D. C., is a business devoted entirely to complete kitchen installations. They report a remarkable increase in kitchen remodeling in Washington. . .



Three of the five modern kitchens on display at the firm's showroom are shown here. They fit nearly any home requirement.

TOASTMASTER *Presents*


TOASTMASTER SALES ARE POPPING!
1932
1933
1934
1935
1936
1937
1938
THE BRIGHTEST SPOT in the whole electric appliance field! Every year sees increased sales of Toastmaster products. 1938 is leading 1937, biggest year to date in all Toastmaster history.

IT'S A GREAT IDEA! The new Toastmaster Toast 'n Jam Set. An eyeful of sales appeal—so bright and colorful that it will pep up any display. Has a beautiful tray of primavera wood, two gay-colored peasant-pottery dishes for jam and marmalade, and the new 2-slice Toastmaster Toaster. Ideal for the breakfast table, children's after-school snacks, and Sunday chafing dish suppers. How you'll sell it, for scarcely more than the cost of the toaster alone! **$17.95**

BUSINESS has been *good,* right along, for dealers selling the Toastmaster line. And it's going to *stay* good. Here is the merchandise to prove it!

This fall we are announcing the *new Toastmaster Toast 'n Jam Set,* to sell at $17.95—scarcely more than the price of the newly styled and improved toaster alone.

There's a new *De Luxe* Hospitality Set, more stunning than ever. And a new *Standard* Hospitality Set that tops any value ever before offered. And all the other best-selling Toastmaster stand-bys. It's a great line!

2 EXTRA-PROFIT DEALS

Two new Toastmaster deals are ready and waiting to step up your profit margin. On Deal A, with your order for the six Toastmaster products specified on this deal, you get the new Toast 'n Jam Set for only $5.00 (retail price, $17.95).

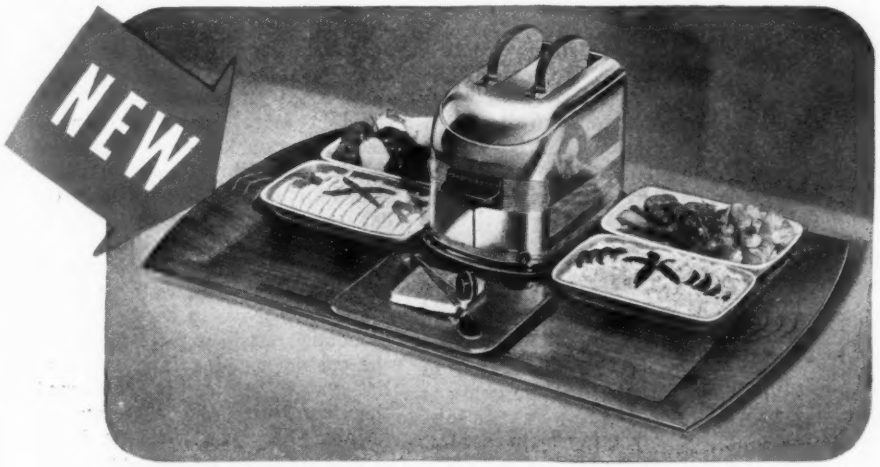
On Deal B, with your order for three Toastmaster products as specified, you get the Toast 'n Jam Set for only $7.50. And with both deals you receive a complete kit of sales helps.

These deals, good till August 31, give you a handsome bonus for being first to introduce the finest, fastest-moving merchandise ever offered by Toastmaster.

Extra Profits FOR DEALERS WHO ORDER *Now!*

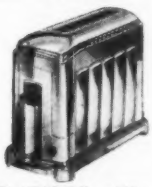
BRILLIANT NEW MERCHANDISE *and* 2 EXTRA-PROFIT DEALS

DE LUXE-R THAN EVER! This stunning Hospitality Set has four lap trays, three appetizer dishes in sparkling Duncan crystal, cutting board, toaster, and spacious tray of new and exclusive design—in richly grained walnut or beautifully figured mahogany. The perfect gift.
De Luxe Hospitality Set—Price **$23.95**



SENSATIONALLY BEAUTIFIED! This standard Hospitality Set is a standout, with its gay-colored appetizer dishes of popular Stangl pottery. With extra-large De Luxe tray (walnut only) and cutting board to match, it is the greatest Hospitality Set value in Toastmaster history.
Standard Hospitality Set—Price **$19.95**

OUT IN FRONT farther than ever! Refined and re-styled. The 2-slice automatic pop-up type Toastmaster toaster. $16.00



NEVER STOPS selling! Has the same mechanical perfection as its 2-slice team-mate. $10.50

BRINGS BUYERS! This Junior toaster carries Toastmaster quality into the non-automatic field. $7.50

THE BEST, that's all. The Toastmaster Waffle-Baker, with instant-acting temperature control. $12.50

FITS BOTH SETS! The most attractive stand Toastmaster * has ever offered. Mahogany or walnut. Converts either new 1939 Hospitality Tray into a handsome coffee table. $5.95

Order Now FOR EXTRA PROFITS

It's a great line—and it doesn't weaken! Toastmaster merchandise is selling where other merchandise is lagging. The line that gives you *action* is the line to push.

Toastmaster advertising this fall will again send customers into your store. There's no let-up in this advertising. The mightiest magazines in the world will tell, re-tell, and *re-re-tell* the story.

Good till August 31! The two extra-profit deals are READY NOW for immediate delivery.

Phone, wire, or air-mail your distributor today, or write direct to McGraw Electric Company, *Toastmaster Products Division, Elgin, Illinois.*

*"TOASTMASTER" *is a registered trademark of McGraw Electric Co.*

2 SPECIAL DEALS OFFERED UNTIL AUGUST 31ST

Electric Water Heating

The Industry's Fastest Growing Service

By J. W. Pentecost*
District Sales Supervisor
Edison G-E Appliance Co.

ELECTRIC water heating is the fastest growing of all electrical services. In the past four years, sales increased more than 600 per cent. In 1937 there were 115,000 automatic electric water heaters sold in the United States.

Five years ago there was one water heater sold to each nine and one-half electric ranges. Today, one water heater is sold to each three and one-half electric ranges. In five years the range business increased seven and one-half times, or 750 per cent, the water heater business increased twenty-one times, or 2,100 per cent. The picture in Georgia, however, is far better; in 1937, Georgia Power Co. sold 4,106 water heaters which means two water heaters to every three ranges.

If you give consideration to the reason why people will buy electric water heaters, why people have bought electric water heaters, here are some of the conclusions you will reach: Every member of the household gets direct benefit from hot water, many times a day.

When we sell electric ranges, electric refrigerators, sun lamps, dish washers, clothes washers, after all, we are dealing with appliances which are of primary benefit to the lady in the household. In selling electric hot water service, you are selling the one appliance above all others, with the possible exception of the electric shaver, which appeals to the man.

Masculine Appeal Stressed

How many salesmen have had the experience, before we became modern and bought an electric shaver, of getting up in the morning and having to shave with cold water? It spoiled your whole day, your bad humor sometimes lasted all day, and sometimes far into the evening, and we have made our wife and family pay for it, when it could have been avoided with automatic electric hot water service.

That is only one of the ways you can appeal to the man in the household.

In selling the electric water heater you can think of many clever ways to make it appeal to the man, and while ninety-some-odd per cent of appliances sold are purchased by the woman in the home, our experience has been that well up to 50 per cent of the electric water heaters were actually bought by the man in the household.

Another reason why people buy hot water service is that there are ten uses for hot water for every use of cold water. They want this water available at the turn of the faucet, they want it to be as easy to get as cold water, and they want that done without any attention on their part, without any labor or work, and that is exactly the type of service an automatic electric water heater gives them.

A Dozen Sales Features

We don't have to sell the need for hot water because every home uses hot water of some kind or another. So what are we going to talk about, what can we use as sales points or advantages in dealing with this subject of electric hot water service? Here are some of them: it is economical; fast; automatic; simple; cool; clean; dependable; healthful; modern; and safe.

If you will look these advantages over you will see that the appeals, or advantages, of electric water heating are almost identical with those of electric cookery. Electric hot water service is economical. Most light and power companies have low rates available for this type of service. For example, the average cost of hot water service on Georgia Power Company's system, to something over 16,000 users, is $2.87 per month. Think of it, $2.87 a month for the advantages and the benefits of having hot water available every hour of the day and every day of the year. People are willing to pay that much, and even more, for dependable hot water service.

So we can talk about it from an economical standpoint, what it actually costs, without dealing in the realms of fancy. You will find in almost every territory of your work someone in that neighborhood using automatic electric water heating, at such a low average cost.

"Fast, Simple and Cool"

Electric hot water service is fast. It is instantly available, the minute you turn the faucet; there is no waiting for the tank or kettle to heat. Just turn the faucet and there it is! It is automatic. What could be more automatic than an electric water heater? It seldom requires attention. You install it, and the customer forgets it, never has to give it a thought. All he needs to do is turn the faucet.

Simple. Nothing complicated about electric hot water service. You don't have to send a home economist out to explain its use to the customer. Insofar as electric hot water service is concerned, there's nothing the customer can do about it. Just turn the faucet —nothing could be simpler.

I suppose it is ridiculous to talk about cool hot water, but the method is cool—cool because it doesn't waste heat. It is cool because all the heat goes into heating the water and not the room in which it is installed. Many of

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*This is the second of a series of articles based on a sales training course conducted recently by the Atlanta Electrical Association for the benefit of local appliance dealers and salesmen.

The first article of this series appeared in the July issue and discussed the fundamentals of salesmanship, emphasizing the factors which account for the success or failure of a salesman.

them are installed in kitchens in homes, and the heat that comes from those heaters is equivalent to about the amount of heat thrown off from a 50 or 75 watt lamp, and spread over the entire surface of that water heater. It is so small they never feel it.

In a well made electric water heater, the customer can put his hand on it and cannot feel any heat. There is no appreciable difference in temperature in the outer shell and the room temperature.

Electric hot water service is clean, and that is one of the big sales features over any competitive method of heating water. There is no smoke, no soot, no ashes to remove, no muddy water, no red water due to high temperature because it is controlled. And automatic hot water heating is the only type of hot water service that is properly controlled so that there can be no red water unless it comes from the cold water pipes.

Dependable. That is an advantage which we can use particularly in discussing the electric water heater. Dependable as electricity. A story about the dependability of electricity that I like to tell is a personal experience.

I have in my home several electric clocks. Nearly a year ago when we returned from a vacation we set them and they have not been touched since, yet they are still exactly accurate, according to radio time. That is an example of the dependability of electricity which we can emphasize in our discussions.

Healthful. When they have a chance to talk about healthfulness, many salesmen shy away and refuse to talk about it. Yet hot water at the proper temperature certainly promotes sanitation in the kitchen. Science tells us that 94 per cent of germs which cause colds, flu, and things of that nature, die in water at a temperature of approximately 140 degrees. Also, there is no smoke to cause trouble, no flame to rob oxygen from the air. Can we afford to talk about the healthfulness of electric water heater service? I think we can.

Safety is probably the biggest advantage we have to talk about. I don't believe in using "scare" headlines, but let's compare our electric water heating method with any other type of heating.

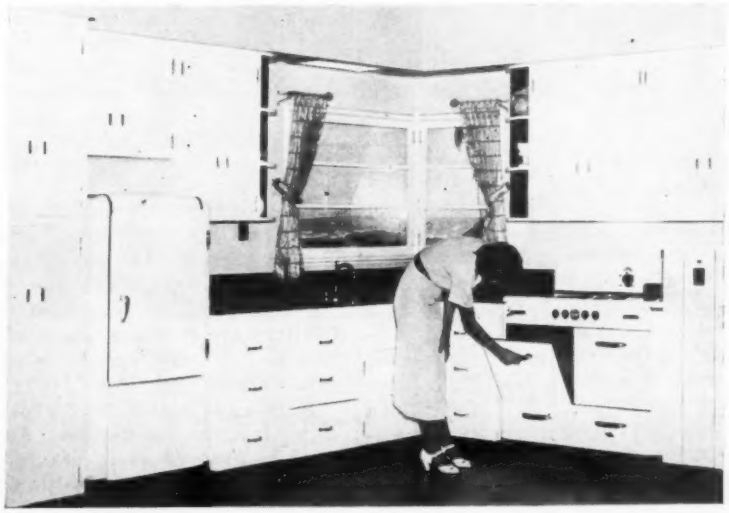
Here are some things to think about: Water heated by an automatic electric water heater is always at the same temperature. Since it always comes out of the tank within four or five degrees of the temperature at which the thermostat is set, there is no danger of scalding. That is not true of water above 180 degrees, and there is no other type of hot water service that I know of where at least part of the time the water won't be at 180 degrees or higher.

There is no flame, no danger of fires, in connection with electric hot water service, which is a factor of safety, and an advantage which we can discuss. There is no danger of explosion, as there is with some types of fuels. The flame type of fuels may cause explosions, death and severe damage.

Probably the most outstanding point we can talk about in this advantage of safety is that electric hot water service is the only method of water heating which is given the unqualified approval of the Board of Fire Underwriters. So those are some points which you should consider in dealing with this question of safety. We don't have to talk about the dangers of competitive methods of water heating, but certainly we are entitled to discuss the fact that our method has advantages which no other method can offer.

Modern. Electric water heating service is modern and up to date, because it alone has all of the advantages just described. Electric hot water service is modern because it will fit right into the equipment of the modern kitchen, along with the dishwasher, the electric range, and electric refrigerator to make a beautiful, convenient ensemble.

Perhaps the contrast between the primitive method of heating water shown above and the automatic electric water heater shown in the modern kitchen below is somewhat exaggerated but there is little doubt that many homes in the South are utilizing methods as obsolete.



No salesman is properly prepared to sell electric water heaters unless he is entirely familiar with other methods used to heat water and their disadvantages in comparison with the modern automatic electric water heater. Let us investigate these other methods.

The first one is a commonly used method. It consists of a kettle of water on the big burner of the electric range or other type of stove. This operation must be performed for baths, dishes and every other use. Does that type of water heating give us any of the advantages we have talked about in electric water heating? It is not even economical to heat water that way. No matter what type of fuel is used, you can heat water cheaper in a properly designed electric hot water heater.

Competitive Methods

Another type of competition is the laundry stove. It consists, generally, of a galvanized tank, of 30 gallon capacity. The water passes through coils around the fire box, is heated, and passes into the tank.

How many of the advantages which we have in automatic hot water service can this one offer? Can we say it is economical? Figures show that to give continuous hot water service this particular type uses from one-half to one ton of coal per month. Is that economical? Coal costs around $9 per ton today, and if you use that figure, half a ton per month would cost $4.50.

Is it fast? Yes, if someone builds a fire in the stove and keeps it going. But it is not automatic, cool, clean, healthful or safe. It is ridiculous to even compare it with any feature of electric water heating.

Another type, used extensively, is the side-arm heater, using vapor or liquid fuel. What are the advantages of this type heater as compared to the type of service we are selling? Is it economical? Yes; it costs very little to operate if you keep it on 15 minutes, draw off the water, and turn it off. Is it fast? No. We light it and wait 15 or 30 minutes for the tank to heat. Automatic? No. Is it simple? Well, fairly so. Is it cool, clean, dependable, healthful, modern, safe—any of the things we have to offer in electric hot water service? Your own good judgment and common sense will provide the answer.

The next type, which we hear about so often, is the well-known furnace coil. That is our chief competitor in selling electric hot water service. A prospect will say, "Do you think I would pay for electricity to heat water? Why I can get it free from my furnace coil, it costs me absolutely nothing."

Let's see if he gets it free. Here are the facts: In the first place, according to tests conducted by well established authorities, with a furnace coil installed, from 17 per cent to 23 per cent of all the coal used may be charged up to this water heater, and the average is 20 per cent. In other words, one shovel-full of fuel out of five goes for water heating. If a prospect uses 10 tons of coal per season for heating, you can figure two tons of that has gone for heating water; so it is not free.

Aside from the fact that the fuel used to heat that coil is wasted by an inefficient, uninsulated tank, the hot water coil in any furnace reduces the efficiency of that furnace about 20 per cent. This coil is always comparatively cool, and the coal near the coil is always comparatively cool. This results in incomplete combustion. The unburned gases go up the chimney and therefore are not utilized to heat the house.

So is this type of heating economical? No. Is it fast? It is fast if the furnace is going all the time, if the weather remains cold enough for the furnace to be kept going all the time. It is more or less automatic. Is it simple? I don't think so, although there is not much to do to it. Clean? Perhaps. Safe? Comparatively, but remember that the temperature of the water is absolutely uncontrolled, and you can't tell whether it will be boiling or lukewarm when you turn on the faucet. After all this is our chief competition, and we can overcome it provided we tell our story.

Now we will deal with the storage gas heater. I am willing to admit that this is the "second best" method. It is economical. However, the rates in effect in most of this territory are such that the cost of electric hot water service is comparable with gas.

Is this gas heater fast? Yes, it is as fast as electricity. Automatic? Yes. Simple? Yes, fairly simple, as long as it operates. Cool as electric water heating service? No. Every time you burn one cu. ft. of that fuel it is necessary to pass approximately 9 cu. ft. of air through the burner to support combustion. The heated air has to go somewhere. Although the heater may be properly vented much of the heat goes into the house.

Although the automatic storage-type gas heater possesses most of the many advantages of the electric water heater, it does not possess them in the same degree. If it were possible to rate it from a point of view giving consideration to all of these factors, it could only be considered about 50 per cent as modern as the automatic electric water heater.

With these advantages, the salesman need not worry about gas service competition provided he knows his story and can sell it to his prospects.

Increased Lamp Activity Expected This Fall . .

Broadened sales opportunities in the portable lamp field are seen for this fall as the cumulative result of five years of public education in the need for greater intensities of illumination, according to utility executives attending the annual convention of the Edison Electric Institute at Atlantic City.

Increased public interest in Better Light for Better Sight has influenced greater interest by lamp manufacturers in the development of "lamps for seeing." These scientifically constructed portables, giving both direct and indirect shaded light, will now be even more attractive as a result of a nation-wide lamp design contest recently conducted jointly by the American Institute of Architects, the American Institute of Decorators and Illuminating Engineering Society.

Department stores, furniture stores and other retail outlets are expected to participate actively in cooperative lamp sales programs to be organized this fall.

Indications are that in more than one hundred large centers there is already prepared some type of broad lamp selling program for the fall. The proposed plans will be of assistance in these instances and will undoubtedly prove an impetus to local cooperative groups in many other communities which are only waiting for such mobilized action.

Contracting

IN THIS SECTION:
Lighting Helps Sell the "Flying Market"
"Side Line" Reduces Labor Turnover
Electrostatic Filters Fill Industry Need

Contractors Association to Meet In Detroit . . . .

THE 36th Annual NECA Convention will be held at the Book-Cadillac Hotel in Detroit, Michigan, on September 12-15, 1938.

The business program has been built around many of the most important problems of the electrical contracting industry and will stress new fields of opportunity for profitable business. The list of speakers includes outstanding representatives of the Federal Government as well as electrical industry leaders.

There will be six full half-day sessions of the convention in the four days, with a special evening conference session on Monday for REA contractors. On Tuesday afternoon there will be the annual golf tournament, with arrangements for those who do not play golf to visit the River Rouge Ford Plant.

Wednesday afternoon will be set aside for sectional meetings—a Union Shop Section meeting for members exclusively employing I.B.E.W. workers, and other sectional meetings of members desiring to discuss special problems of their particular groups.

The Detroit convention committee have arranged for a notable exhibit of manufacturers' products to be shown in the exhibit rooms adjoining the convention hall and the manufacturers' reservations already made for space for this exposition promise this to be of unusual interest.

Among the subjects to be discussed on the program are the following:

Industrial Electrification
Residential Rewiring
Financing Rewiring Programs
Another $100,000,000 for REA Work
Farm Wiring
Price Maintenance Laws
Code of Fair Buying Ethics
Correcting the "Price Discrimination" Evils
The Voluntary Agreement Plan
Analysis of Important Federal Legislation

One session of the convention will be devoted to the presentation of new developments in products which hold special opportunities for profitable business for electrical contractors.

Seven Miles Of Welding In Louisiana "Sugar Bowl" .

Approximately seven miles of welding went into the recent addition to the Sugar Bowl, Tulane University's stadium where championship football teams battle for supremacy each New Year's Day. The Dixie Machine Welding and Metal Works, which received the contract for the actual welding work, finished the job in record time, using six General Electric 400-ampere electric welding equipments. Welded steel construction cost $60,000 less than comparable reinforced concrete structure.

Twelve Cities Licensed To Certify Wiring . .

Twelve important centers have now been licensed to operate the certification phase of the National Adequate Wiring Program, according to a recent announcement from the National Bureau. Cities recently added to this list are the following:

Alexandria, Va., through the Electric League of Northern Virginia; Cincinati, Ohio, through the Cincinnati Electrical Association; Omaha, Nebraska, through the Omaha Electrical League, and Salt Lake City, through the Electrical League of Utah.

Cities now licensed—in addition to those just enumerated—are New York, Philadelphia, Washington, D. C., Charlotte, N. C., Birmingham, Memphis, Tri-Cities and Los Angeles. In almost every instance the local group will certify homes wired to the approved local standard in an area larger than the city limits. Applications have been received from four other cities.

Adequate Wiring Program Presented in San Antonio

From A. E. Schanuel, field representative of the Adequate Wiring Bureau comes a report that the entire southwest is actively interested in the National Adequate Wiring Program and that many important cities in this area are taking steps to tie-in with the wiring plan.

Mr. Schanuel has just completed an extensive trip through the Southwest where he addressed many enthusiastic groups such as the one in San Antonio shown above. Electrical contractors, wholesalers and utility company representatives were present. R. E Sivley, manager commercial department, San Antonio Public Service Co. presided.

The trend toward independently owned service stations affords the electrical contractor a tremendous field in which to sell improved wiring and lighting. Lighting in the station shown here totals 10,000 watts.

Lighting Will Help Them Sell the "Flying Market"

By Paul T. Tysinger
Lighting Supervisor
Duke Power Company

THE present trend toward independently owned or leased stations away from the company operated stations means that the independent owner or manager will have more authority to make changes at his station. This fact, plus many new lighting tools, affords the electrical contractor a tremendous field in which to sell improved wiring and lighting. The advent of the 1000-750-500 watt bipost incandescent lamps should influence the cost of floodlighting equipment and bring this sales item within range of every small station owner's pocketbook.

Why not show the service station operator how to capture the "flying market" with light, and in the meantime capture for ourself some new business that awaits on almost every corner?

In order to capture the "flying market," a large oil company in Texas made a series of exhaustive tests at a number of stations to determine what most attracted motorists. It was found that modern lighting increased station sales by 25 per cent. When these stations were left underlighted, their sales fell off 25 per cent. When lighting was restored, the sales came back.

The tests also revealed that daytime business fell off when the night lighting was decreased, and rose again when the lighting increased. Therefore, modern lighting is not only a selling tool at night but also helps daytime sales by changing the habits of customers.

An outstanding example of good lighting in the filling station field is to be found in the station of John W. Evans, located on U. S. Highway 521 in Lancaster, South Carolina.

Prior to the construction of the building, Mr. Evans made an inspection tour of many stations to secure ideas that might be utilized in his plan. The survey satisfied him that a successful station must have eye-appeal to produce an impression of attractiveness and streamline efficiency; and that light must be used to compel attention by night to present the station in its true spirit of safe and speedy service.

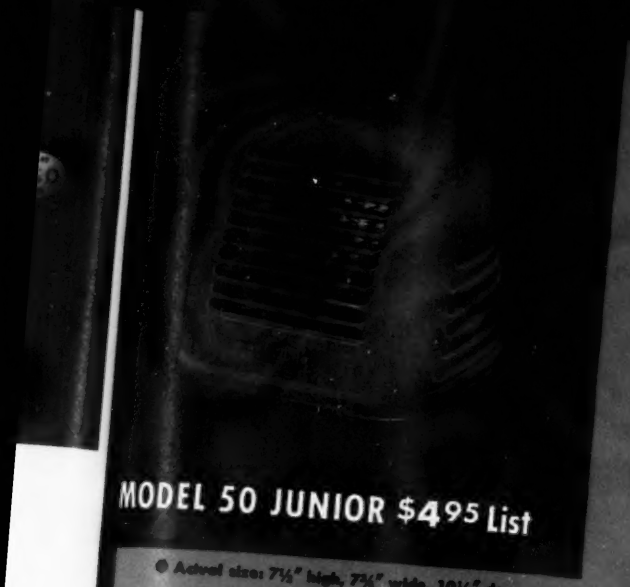
As a result of this survey, Mr. Evans has achieved the ideal conditions desired by every service station operator. His station includes every facility for prompt and efficient service known to the trade; the general modernistic architecture of the building is a

(*Continued on page* 23)

Details of Lighting Equipment in the Evans Station

Department	Type of Equipment	No. of Units	Wattage
Sales Office	Indirect	2-300 w	600 w
Business Office	Indirect	1-750 w	750 w
Private Office	Indirect	1-750 w	750 w
Grease Pit	Vapor Proof in Pit	6-100 w	600 w
	Angle Units, Ceiling	4-100 w	400 w
Grease Lift	Angle Units, Ceiling	14-100 w	1,400 w
Battery Room	R.L.M. Dome Reflectors	2-200 w	400 w
Car Wash Room	Angle Units, Ceiling	14-100 w	1,400 w
Pump Islands	Goodrich Units	4-200 w	800 w
Floodlights	H. I. Mercury Vapor	2-400 w	800 w
	Incandescent	4-300 w	1,200 w
Rest Rooms	Porcelain Receptacles	3-100 w	300 w
Brackets	Conventional	6- 40 w	240 w
Total Wattage			9,640 w

In addition, there are a number of general lights at tanks, air stations, signs, etc. A large neon sign carries the name of the station and decorative neon is used around the canopy at the doorway. A number of convenience outlets are provided throughout the building.



MODEL 50 JUNIOR $49.95 List

● Actual size: 7½" high, 7¾" wide, 10½" deep.

NEW! Low Priced Leader

ARVIN

ELECTRIC

Fan-Forced Circulating

HEATERS

They CIRCULATE as they HEAT!

The efficient, healthful way to warm the air completely—for maximum comfort.

●

Selling in bigger volume than ever before.

Rural electrification, camp cottages and trailers have broadened the market for these efficient and economical circulating heaters. They sell fast because they are priced for volume turnover.

Circulating heat warms the air completely. It's the healthful, efficient way to obtain maximum comfort, heating engineers agree. Arvins *circulate* as they *heat*—drawing in the cold air, heating and circulating it at the rate of 45 cubic feet per minute.

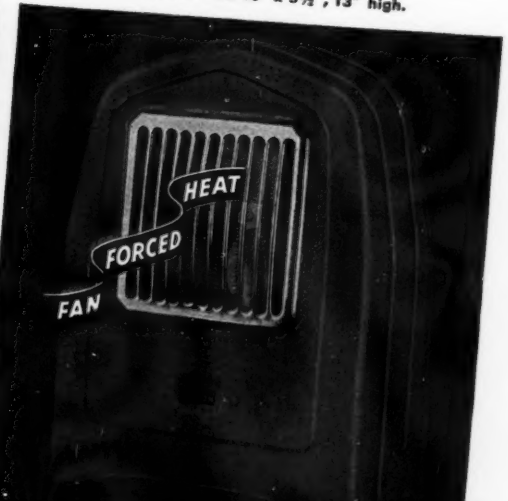
People buy Arvin circulating heaters for use in city and rural homes—for small offices, stores, ticket booths and hospital rooms—wherever extra or temporary heat is needed. Cash in on the fall and winter demand—order these Arvin profit-makers today.

NOBLITT-SPARKS INDUSTRIES, Inc. • Columbus, Indiana

● Actual size: 9½" x 5" base, 11" high.

ODEL 100 STANDARD $79.95 List

● Actual size: 10" x 5½", 13" high.

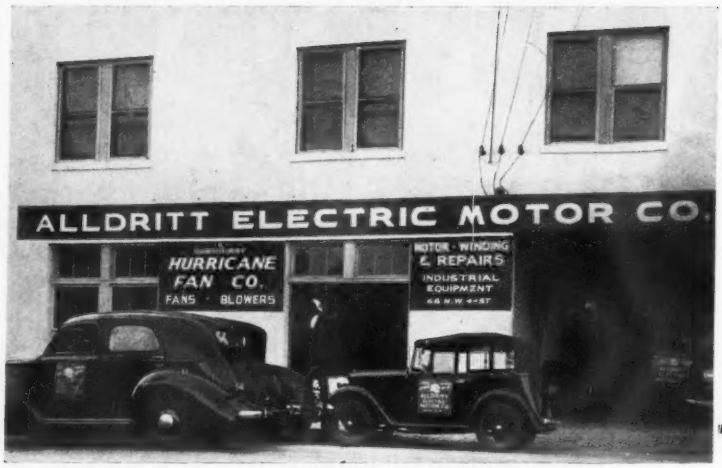


MODEL 200 DELUXE $99.95 List

ARVIN HEATERS HAVE MAI PRACTICAL USES—

For baby's bath, for shaving, dressi drying hair and many other personal us Everyone likes the circulating warmth tl provide—to drive out the early-morni chill in bedrooms and bathrooms.

All Arvin Heaters operate on 50 to cycles, 110 to 125 volt. Induction t motors, fans and heating units are f enclosed—making the heater perfe safe. Heavy gauge steel cabinets in gr enamel morocco finish. No radio inter ence. Rubber feet that can't scratch!



NOT every electrical contractor or motor rewinding shop can establish a ventilating fan manufacturing organization to help smooth out business peaks and valleys, but the experience of the Alldritt Electric Motor Co. described here emphasizes the advantages of combining related activities under a single management . . . . . .

"Side Line" Solves Labor Turnover Problem

By Jack Beater

SEASONAL peaks and valleys in the business curve are problems that face most electrical contractors and motor rewinding and repair shops. Larry Alldritt, who owns the Alldritt Electric Motor Co., of Miami, and a subsidiary business, the Hurricane Fan Co., met the problem in a novel way.

The two businesses, working hand in hand under one management, have solved the problem of seasonal peaks and valleys, and have all but eliminated the necessity of adding extra help in the fall and laying off men in the spring.

"And that used to be quite a problem," Mr. Alldritt admits. "As everyone knows, Miami goes full blast during the winter season and then has a comparative slump through the summer. When our business was all motor winding and repair, we had to take on extra men for the busy season, and let them go in April or May.

"It was hard enough to find experienced motor men who would take a job lasting only a few months, and when we did get them, it was equally hard to let them go in the spring.

"It was just that aspect of the case—perhaps a little indirectly—that got us started in the ventilating business," continues Mr. Alldritt. "Before we got into the fan and blower game, we had a heavy labor turnover; now we keep the same crew busy the year round."

In 1926 Larry's father, Roy H. Alldritt, moved to Miami and started a one-room business in his home. The business was winding automotive and marine generator armatures.

When his father retired from active work, Larry took over the shop and started out after new business in earnest. Since there was no longer a fair profit in automotive winding, he decided to go after larger work. With this idea in mind he set up a larger shop and solicited the repair of commercial motors.

Piece by piece more equipment and stock was added until the shop was able to handle the winding of the largest motors to be found in the territory. Soon Larry had three or four men at work, and the seasonal problem became a factor. There was plenty of repair work during the winter months when all the fruit and vegetable packing plants, the ice factories, laundries, the big tourist hotels, and all the other industries were operating at capacity. But it was decidedly different through the long summer months.

At the same time, problems born of the depression had to be faced. First, just about the time the business was started, the Florida real estate boom came to an end. That was in 1926, and while the rest of the country was leading up to the 1929 peak, Florida was passing through a critical readjustment period.

Just as things began to look up in our southermost state along came the famous stock market crash and upset the apple cart all over again. During the past eight years, the Florida business man has had about the same conditions to meet as have faced other sections of the United States.

In spite of all this, Mr. Alldritt has built up a good, sound business. Five times in the twelve years it has been necessary to move the shop into larger quarters to take care of the growing volume of work. The present shop is a light and roomy building with a 75-foot front and 150-foot depth. Office and sales rooms occupy a moderate area in the front of the building, new and reconditioned motor stock take up the central section, leaving the back half of the building for the shop proper. An average of ten employees are on hand for their pay checks every Saturday afternoon.

"As I mentioned before, the seasonal nature of our business had me guessing. Four or five years ago the annual slump came around and I was faced with the necessity

of cutting some of the men from the payroll. There was one man in particular that I hated to let go. He was not only an expert motor winder, but he had had considerable experience in ventilating installations before he came with me.

"I told him I would have to let him go as far as the motor shop was concerned, but I suggested that he might look around and see if he could land some contracts in the ventilating field. I promised him the use of the shop for such work as he might get, and a good commission for any business he might be able to bring our way.

"To make the story short, this man went out and really sold some nice jobs that first summer. He knew how to figure and lay out ventilating systems as well as to install them, and we both began to make money out of the new department. Being a practical man he had some ideas of his own about ventilating equipment, and before long he was engineering complete units to meet special conditions as found in this part of Florida. We bought the motors, had fans made to our specifications, and did the fabricating right here in our shop.

"These special installations worked so well that we obtained quite a reputation and a considerable increase in business. In fact, the fan business soon became so large that we had to organize a subsidiary company to take over the sale, installation and servicing of the ventilating equipment. We not only manufacture our own line of fans for special conditions, but we are manufacturers' agents for other brands of commercial and home ventilating systems.

"The greatest advantage of the ventilating business is that it irons out the peaks and valleys in the shop. It's really quite simple. As far as our motor repair shop goes the dullest months are May to September, and those are the same months in which 80 per cent of the renovating and construction of new buildings occur here.

"Practically all our major ventilating installations are put in during those months, and we can take the surplus men from the motor shop and put them out on the construction jobs. The same work that gives us a year-round volume of business also gives our men steady work throughout the year. Since we've developed the fan business, we can get good men and keep them with us from year to year, and everybody's happy.

"We survey each situation and choose the equipment that we know will handle the job right. Anybody can sell fans or blowers, but not just anybody can pick the right type and size for the job. We think we can and we're getting a lot of new contracts as a result of the satisfaction our other installations are giving."

Although this story has stressed the ventilating angle of the business, the motor winding and repair phase is not being neglected. Mr. Alldritt realizes that the two lines of work go together like ham and eggs; one makes good winter business, the other brings in profits during the summer. When winding jobs are few and far between you'll find Alldritt's shop busy assembling various kinds of ventilating equipment for stock or future contracts.

There is a rapidly developing field for ventilating equipment in the southern states, and what this type of business has done for the Alldritt Electric Motor Co., it can probably do for many others. At least, it's worth investigating.

Lighting Will Sell The Flying Market . . .

(*Continued from page* 20)

splendid example of the present trend toward stations that have eye-appeal and attraction power; and from an electrical point of view the station is a model of adequate wiring that serves and saves.

Some idea of the adequacy of the lighting may be obtained from the accompanying tabulation which gives the number of units and total wattage in each division of the station. Designed by the lighting division of the Duke Power Company, the wiring and lighting system was installed without a single change from the company's original recommendations.

All branch circuits were wired with No. 12 wire with the exception of the floodlighting circuits. No. 10 wire was used on all flood lighting circuits in order to maintain good voltage regulation at the transformers used in connection with the mercury vapor lamps.

According to recent statistics, service stations require lighting about 30 per cent of the time they are open for business. Traffic tests reveal that one-third or more of the average station's prospects go by after dark, unless the station is properly identified at a distance of about 1,000 feet. To attract the motorists, who compose the "flying market," at this distance, in ample time for them to stop, the station must be illuminated to make it stand out in contrast to its surroundings.

Glaring spots of light from bare bulbs outlining a station may provide ample illumination for the station operator, yet the impression conveyed to the motorist while 1,000 feet away may bring to mind

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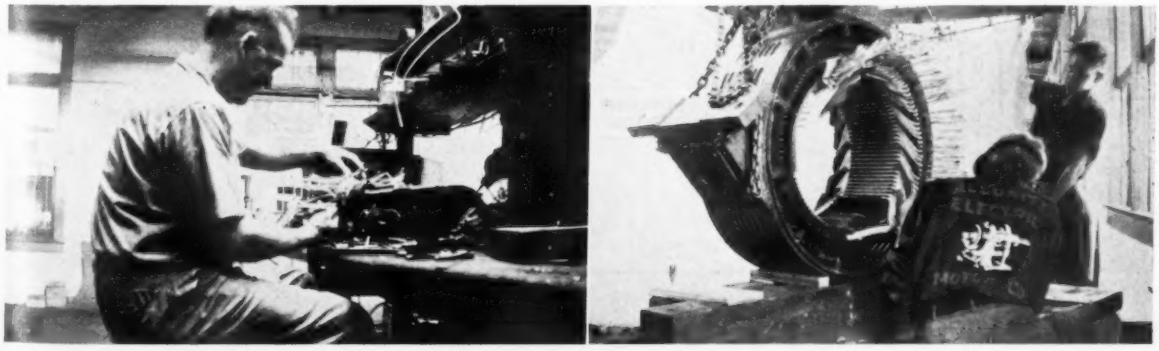
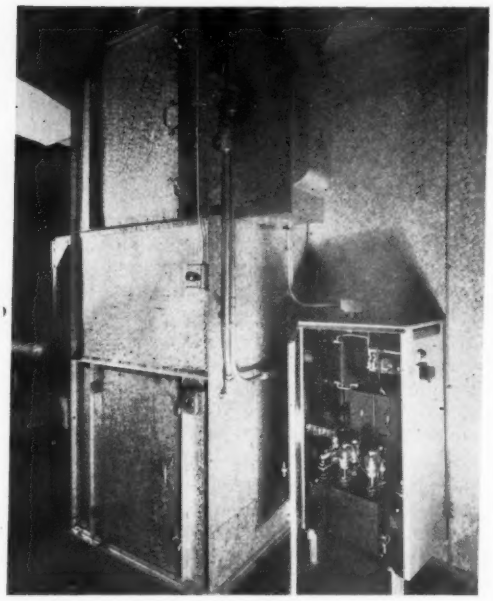


Although the ventilating department of the Alldritt Electric Motor Co. has provided profitable work during dull seasons, the company has not neglected its motor department which handles a wide range of work.

Electrostatic Filters Fill Industry Need



In the Field Building, Chicago, first to have an electrostatic installation, 18 units have been instal.ed which are capable of cleaning 272,000 cubic feet of air each minute. In a year's time, it is estimated, the installations will have collected approximately 600 bushels of impurities, 90 per cent of which will consist of particles one-hundredth the diameter of human hair. One of the Field Building units is shown here. . . . . .

A NEW branch of the electric industry may result from the electrostatic process developed by the Westinghouse Research laboratories which removes up to 99 per cent, by weight, of all particles in the atmosphere, even those which are as small as four-millionths of an inch in diameter and almost submicroscopic.

The first and largest installation of this type of equipment was installed in the Field Building of Chicago. However, an electrostatic precipitator has just been installed as an integral part of the air conditioning system in the new addition of the Lewis-Gale Hospital, at Roanoke, Va., said to be the first installation in the South.

The installation was made by Oil Burners and Air Conditioning Corp., of Roanoke, headed by N. V. Nininger, president. Electrical wiring in connection with the installation was done by Jefferson Electric Co., with G. L. Seay, engineering the installation.

Installed in the basement of the new building are four units having a total capacity of 120,500 cubic feet of air per minute. Removing 99%, by weight, of all particles in the atmosphere, the collection on the grid plates will consist of ash, carbon, soot, lampblack, oils and greases, sulphur, bacteria, germs of all kinds, and seasonal pollen. Thus is obtained what is referred to as "the world's cleanest air" which, being directed through the air conditioning apparatus is properly reconditioned and recirculated through the building in the usual manner.

Physicians have already tested the reactions of hay fever and asthmatic patients to electrically cleaned air. Those with hay fever caused by breathing pollen-laden air have found almost immediate relief. Asthma sufferers whose troubles result from breathing the dusty air of cities have been aided. Certain types of sinus ailments also have yielded and continuing laboratory work is expected to develop more data for treatment.

Tests conducted by Westinghouse for several years show that in Pittsburgh, where units have been installed as part of warm air heating systems, curtains which ordinarily are changed every two weeks remained clean

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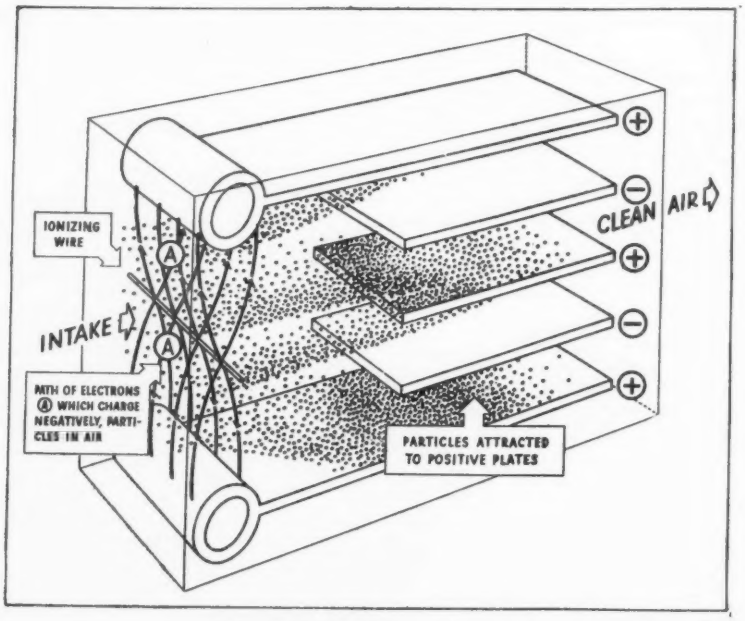

IONIZING WIRE
INTAKE
MTH OF ELECTRONS (A) WHICH CHARGE NEGATIVELY, PARTICLES IN AIR
CLEAN AIR
PARTICLES ATTRACTED TO POSITIVE PLATES

How The Precipitron Cleans Air

Dust-filled air, normal atmosphere, is drawn past an ironizing wire which emits a stream of electrons. Particles suspended in the air, passing through the electron streams, are charged negatively and then, as they pass through the unit, the charged particles are drawn out of the air to the positively charged plates where they cling as the cleaned air passes on . . . . . .

Engineering

IN THIS SECTION:
Capacitors Forestall Substation Expansion
Automatic Power Factor Regulation
Wound Core Transformers Offer New Features

Capacitors Forestall Substation Expansion

WELL-PLANNED capacitor installations on feeders serving the downtown area of Warren, Ohio, recently solved the problem of how to handle power consumption increase for the Ohio Public Service Company. The installation has precluded the necessity of expanding existing facilities and is realizing appreciable operating economies.

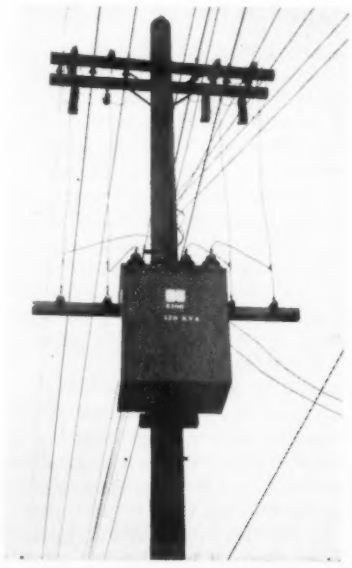
The complete program calls for the installation of 1800 kva of capacitors within four years. 360 kva of these units have already been put in, effecting an initial saving of $6,500 on forestalled substation investment.

The study revealed that the location and physical layout of the existing substation would not permit the addition of new capacity. To expand facilities would have required building a new substation far on the other side of town—the only place where a suitable site was obtainable.

Further conservative analysis disclosed that an installation of 420 kva of capacitors at a cost of approximately $4,000 would release 230 kva of the present substation capacity, permitting profitable handling of the anticipated load growth for one year.

By extending the program over a four-year period until a total of approximately 1800 kva of capacitors have been installed, estimated yearly load increases on the substation will be relieved, according to the program analysis.

The survey showed that the following annual savings might be claimed in addition to the $6,500 saving on forestalled substation investment: value of released generating capacity, $23,600; value of released feeder capacity, $5,100; increased revenue, $3,500; savings in distribution feeder copper losses, $3,000.



Typical Capacitor Installation

Laboratory Lightning Shatters Nature's Record Of "Strikes"

MAN recently bested nature's record by sending his quarter-millionth successful reproduction of a natural lightning stroke crashing into a transmission pole with a pressure of more than 3,000,000 volts.

P. L. Bellaschi, research engineer of the Westinghouse Electric & Manufacturing Company in whose high voltage laboratory the artificial strokes have been loosed and counted during the past five years, estimated that this number exceeds the frequency of natural lighting "hits" on all the high-voltage power systems in the United States during the same period.

The researcher based his estimate on the fact that a mile-long stretch of even a highly vulnerable transmission line is not struck by lighting more than once in two years.

Engineers have long known that a lightning stroke combines a heavy flow of current at tremendous pressures of around 10,000,000 volts or less when it hits ground but it was not until five years ago that Mr. Bellaschi invented a lightning generator and a miscrosecond switch capable of simulating a powerful segment of such natural lightning.

In a laboratory at the Westinghouse transformer works in Sharon, Pennsylvania, the lightning investigators built a three-story

(*Continued on page* 28)

The dependability of modern distribution transformers is demonstrated here in a spectacular manner. Fifty different times Westinghouse engineers have hurled the equivalent of a natural bolt of lightning into this protected distribution transformer and each time it has withstood the blow of 50,000 amperes at a rise of between three and four million volts pressure.

Five years ago when the first tests were made with lightning in the laboratory, the odds were 99 to 1 that a direct lightning hit on a distribution transformer would blow it up and loose the current into the ground, causing a service interruption until the transformer could be replaced. Today the odds are practically inverted.

Automatic Power Factor Regulation In Distribution Feeders

By E. H. Stivender
Switchgear Division
Allis-Chalmers Mfg. Co.

THIS is the concluding section of a discussion begun in the July issue of ELECTRICAL SOUTH.

In this part of the article, Mr. Stivender discusses the use of regulated capacity on distribution feeders to maintain constant voltage at a receiving point.

Consideration is also given to the effect of such equipment on line current and losses.

Figure 1, showing a typical installation, is reprinted from the July article.

AS PREVIOUSLY stated, the capacity may be regulated in such a manner as to maintain constant voltage at the load end. Furthermore, by the use of a line drop compensator, constant voltage may be maintained at some point other than where the power factor regulating apparatus is connected. The power factor regulating apparatus may be used with the load compensating connection, as mentioned, or a voltage regulating element may be used instead.

Where the power factor regulating element is employed, it is necessary to use load compensation or to set the regulator for a given leading power factor, whether the voltage is to be maintained at the point of connection or at some other point. This leading power factor setting is determined by the loading conditions and the constants of the line.

By maintaining a constant leading power factor for all loads, a satisfactory degree of voltage maintenance can generally be obtained; however, the use of this method allows the voltage to rise slightly at light loads. By the use of load compensation on the power factor element, the leading power factor is a function of the load current and flat voltage is obtained for all loads.

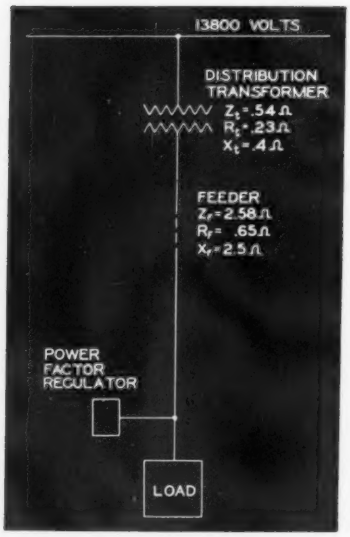


Fig. 1—2300 volt distribution feeder showing connections of parallel type automatic power factor regulator of the type discussed in this article and the line and transformer impedances.

The action of a voltage regulating element differs from that of the power factor regulation element in that the former tends to increase or decrease capacity to hold a definite line voltage, regardless of either voltage conditions at the sending end of the line or the wattless current in the line. A power factor element would tend to make the load voltage always a function of the sending voltage; that is, the power factor regulator would generally be set to keep the load voltage nearly equal to that at the sending end. For this reason, line loss due to either leading or lagging current can be reduced to an absolute minimum and flat voltage maintained at the load by using some form of voltage regulating equipment at the sending end and power factor regulation with or without load compensation at the receiving end. This method is adaptable in cases where voltage regulating equipment is in use at a generating or distribution point; then power factor regulating equipment with or without load compensation is beneficial at the receiving points.

If power factor regulation is considered before a distribution line is constructed, by spacing the conductors on the poles farther apart than would ordinarily be, greater inductive reactance can be obtained, and hence less condenser capacity for the regulating equipment is required. Therefore, while ordinarily the conductors would be placed as close together as possible in order to reduce reactance, two advantages can be gained by spacing them farther apart when power factor regulating equipment is to be used—greater insulation for the line and lower cost for the regulating equipment. In some cases, it might even be economical to install reactors in the line. This method would allow the use of high speed operation where it is desirable to place a large amount of capacity across the line in a short space of time, as, for instance, when large motors are started.

Service At Both Ends Improved

The practice of changing the regulator taps on the supply transformer in order to compensate for the greater line drop with increasing loads would in many cases be eliminated, since the action of the automatic power factor correction apparatus would make the receiving voltage on a feeder nearly equal to the sending voltage. Likewise, the objectionable variable sending voltage obtained with ordinary regulating equipment would be eliminated and flat voltage at one end of a feeder would not be sacrificed to provide the same characteristic at the other end. Hence, power factor regulation promises improved service for power consumers at both ends of a feeder.

Where it is desired not to have the regulating equipment operate on every fluctuation in load condi-

tions, a definite time relay can be introduced so as to hold the control circuit open for a given time after a change occurs; then, if the change is not sustained, the control equipment does not operate.

Where the no load voltage is likely to reach excessive values on the receiving end of the feeder, such as when the line would be de-energized at full load and later be re-energized with no load connected, provision can be made for running the regulator back to zero before the contactors begin to close.

By the use of a "forcing" arrangement the complete bank of condensers can be made to be almost instantaneously placed across the line when excessively low power factors occur. This would be useful for where large motors are to be started.

Comparison of the two methods of voltage regulation. In any method of voltage regulation, the line losses are increased when constant voltage is maintained at a receiving point. Conventional voltage regulating equipment, as heretofore used, has nearly always been employed to greatest advantage at the sending end of a feeder. Line losses are reduced by virtue of the higher transmission voltage produced by a voltage regulator operating with line drop compensation; that is, the kva of the feeder is increased by raising the voltage. If such a regulator were located at the receiving end, the kva would be increased by the increased current. Hence, since losses vary as the square of the current, the proper position for the conventional feeder voltage regulator is at the sending end.

Voltage regulation by means of condensers naturally makes the receiving end the preferable location, since the principle of operation is the elimination of lagging current flowing through an inductive line. Such regulation, of course, requires additional capacity in the power factor corrective equipment.

The kw loss in a static condenser is approximately 0.2% of the kva input to the condenser, although low automatic regulation further reduces losses in a system by removing condenser kva from service when it is not needed. Since the kva capacity of a condenser varies with the square of the applied voltage, it is often a great saving in first cost to provide step-up transformers and high voltage condensers when power factor correction is desired on low voltage circuits. The full load losses of such transformers are 1.5 to 2%, and automatic regulation reduces this as well as condenser loss by reducing the load on the transformers.

The curves in Fig. 3 show the current for the five cases discussed in Section 2, and Fig. 4 shows the line and transformer losses in kw. Fig. 4 is only for the losses in the line and feeder transformer; losses on the high tension line are not included nor are the slight losses of the power factor correction equipment.

Case 6. Losses in a feeder employing the power factor method of voltage regulation. The following discussion is based on the line constants and load conditions outlined in Case 2.

Suppose it is desired to obtain a slightly rising voltage at the power factor regulator. This would require total capacity of approximately 333 kva, or 120 kva additional to that required in Case 3.

Full load rating of the load equipment is 242 kw at 75% power factor, 2300 volts. The placing of 333 kva of capacity in the regulator brings the total power factor of the load and condenser to approximately 90% leading at full load; the total kva is 270 and the current at 2300 volts is 117.5 amps. The total equivalent impedance of the load and condenser is Z_{L6}=19.6 ohms, in which R_{L6}= 17.6 ohms and X_{L6}=8.62 ohms. Adding this to the total impedance of the line and transformer, .88+J2.9 ohms (see Fig. 1), the total impedance of line, transformer, condenser and load is

18.48—J5.72 ohms
=19.4 ohms

With 13,800 volts on the primary of the distribution transformer, the line current is

2300/19.4=118.5 amp

The voltage at the load is

118.5 Z_{L6}
=118.5×19.6=2320 volts.

Thus, a rise of 20 volts at full load is obtained between the sending and receiving ends. If it is desired to have 2300 volts, the regulator will be set so as to insert a slightly smaller amount of capacity in the circuit.

The losses incurred by this type of voltage regulation on the feeder under consideration are given in graphic form in Fig. 5, curve 0-6. These curves are plotted to the same scale as Fig. 4, so that direct comparison can be made.

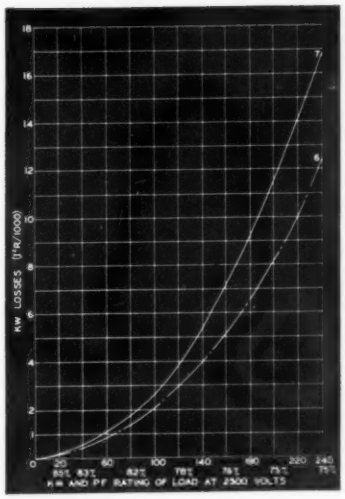


Fig. 5—Comparative losses in the line of Fig. 1, using compounded voltage regulation at the sending end as against compounded regulation by automatically varied capacitance at the receiving end. Curve 0—6 is for Case 6 (capacitance regulation) and Curve 0—7 is for Case 7 (voltage regulation—by generator or feeder regulator or otherwise). Line and distribution transformer losses only are given.

Case 7. Losses in a feeder employing the usual method of voltage regulation. In order to provide 2300 volts at the receiving end of the feeder under consideration, the voltage at full load at the sending end, that is, the primary voltage of the feeder transformer, must be raised 16.5%.

The losses for all loads are plotted in Fig. 5, curve 0-7. Note the greater losses as compared to curve 0-6.

From this discussion, it may be seen that automatic power factor correction has considerable possibilities when applied to distribution feeders. It is felt that in the near future the savings to be gained in equipment and power will cause this form of regulation to be common practice.

(In the first section of this article which appeared in the July, 1938, issue of ELECTRICAL SOUTH, Mr. Stivender described the equipment available for automatically controlling power factor on distribution feeders. He compared the results that would be obtained by using fixed capacity without regulating equipment with results obtained through regulated capacity.)

Laboratory Lightning Shatters Nature's Record Of Hits . .

(*Continued from page* 25)

stairway of 36 banks of condensers, each charged with 100,000 volts of direct current with a combined output of 3,600,000 volts, comparable to the high applied voltage rise of a lightning stroke after it has struck a power line or a tree. The capacitance of this high voltage generator is larger than any other generator in the world. This was only half the lightning job. Another shorter stairway was built to carry eight banks of eight condensers; each condenser representing so many cubic feet of a thunder cloud, and acting together to produce 150,000 amperes of current for a period as great as 200 millionths of a second.

By continually bombarding electrical apparatus and equipment with these artificial lightning strokes, the researchers have discovered, with the aid of special cameras and measuring devices, that the average stroke consists of a core about the size of a man's finger which upon completion of the discharge explodes into a column of sponge-like fire about four inches in diameter.

It is this explosion which gives rise to the thunder. In this core pressures are developed up to 20,000 pounds to the square inch when the discharge is confined. These are the pressures with which a lightning stroke rips trees.

The core has a temperature of about 14,000 degrees Centigrade. It is essentially the tremendous pressures and heat capacity of lightning that inflict havoc on such electrical apparatus as transformers, generators and meters.

The researchers have found that lightning from a thunder c'oud, as demonstrated in their measurements consists of two paths; first, a relatively inoffensive leader stroke cuts the trail from the cloud to ground; then the faster moving core stroke which carries the heat and destructive energy flashes along this trail.

This leader stroke travels at a rate about one one-thousandth as fast as light, which is around 186,000 miles a second. When it hits an object there is a heavy current discharge into this channel. The current discharge travels about one-fifth as fast as light.

Mr. Bellaschi pointed out "the lightning-stroke generator remarkably performs nature's complex mechanism. First, the voltage generator by its high potential opens the path; then through the microsecond switch the current generator is thrown into action and blazes the core."

Lighting Will Sell The Flying Market . . . .

(*Continued from page* 23)

the thought of a barbecue stand or a wayside market.

The science of seeing is well applied to the gasoline service station business, as every motorist is influenced by brightness, contrast, size and time. If the 87 per cent of impressions received through the eyes determine the pressure exerted on the accelerator, under the very best visible condition, the motorist has only a matter of seconds to see the station in time to stop.

Pump lighting helps to build up the intensity at the car and makes it easy for customers to watch the pump dials spin.

Island display cases, properly lighted, are silent salesmen, suggesting purchase of automotive accessories to the customer at the time when his pocketbook is out.

Keeping the pit or lift well lighted at night will attract the attention of customers and help to establish confidence in the station's ability to render efficient lubricative service.

A station may be attractive by day and yet literally hide from customers as soon as darkness comes. Adequate floodlighting will attract the attention of motorists in plenty of time to stop, providing that vertical lighting is applied on the station and pumps. Horizontal lighting on the ground surface has very little attraction power.

Mercury vapor for floodlighting is modern in every respect and produces 50 to 100 per cent more light for a given wattage. This light source offers a distinct advantage in producing an unusual lighting effect on white, black, yellow, green or blue colors of the building. However, incandescent lamps should be used with the mercury where oil company "trade" colors involve red or orange as mercury alone distorts these colors.

Branding Poles With Electric Heat . . .

H. S. Colbrath and Roy W. Wages, electrical heating engineers, of Georgia Power Co., solved a pole branding problem for the Jackson Lumber Co., Macon, Ga., with the device shown in the accompanying illustrations.

The branding iron, utilizing a 2,000-watt Chromalox heating unit, is designed to burn the trade name "Dixie" as well as a code marking for quality identification and date, deeply in the side of the pole.

The iron is equipped with a spade like handle and a long extension cord which permits movement anywhere in the yard. The electrically heated iron was made of a smooth turned casting with encased heating elements. Letters and numerals for code marking are located on a beveled edge which permits the burning of one letter or numeral at a time. The iron is approximately 9 inches in diameter.

Left, a branding iron designed for pole marking. Right, Roy W. Wages and H. S. Colbrath, both of Georgia Power Co., who designed the iron.

Wound-Core Transformers Offer Unique Features

THE WOUND core distribution transformer, which embodies a design principle completely revolutionary in the transformer art, was described in a paper presented at the A.I.E.E. meeting in Washington, June 23, by E. D. Treanor, executive engineer of the General Electric distribution transformer department at Pittsfield (Mass.)

As the name "wound core" implies, the important new feature of the transformer is its core construction of two continuous strips of relatively low silicon content cold-rolled steel, tightly wound into two metal rings through and around the coils. The coils are oval in shape and of short axial length, interleaved in secondary-primary-secondary arrangement.

The significance of the wound core transformer can be best appreciated by considering that it completely eliminates the cutting and placing of the hundreds of separate pieces of steel that make up the core of the conventionally designed transformer. The two ribbon-like steel strips that comprise the cores of the new transformer are pre-wound and assembled on machines at high speed.

According to Mr. Treanor, units of 1½, 3, and 5 kva have been produced in voltage classes of 7620 volts and below.

The wound core is said to eliminate or minimize most of the objections inherent in other types. Its design makes it possible to take advantage of the properties of high-reduction cold-rolled strip steel of comparatively low silicon content. Flux runs with the grain direction throughout the core, and all material in the core is active.

In the wound core transformer, each element of flux finds but one air gap of small length and relatively great area in its path. The result is that little magnetomotive force is consumed in the reluctance of air gaps as compared with other cores.

Steel for the wound cores is produced to specifications in strips of required width and length. Slit into desired width for various size cores, the steel reels are set up in multiple before a pre-winding machine and attached to a mandrel which is rotated to draw the strips through tension devices until the cores are built up. Micrometer gauges control the winding of the cores to desired thickness. After annealing, the cores are ready for the assembly process.

Assembling cores and coils is ac-

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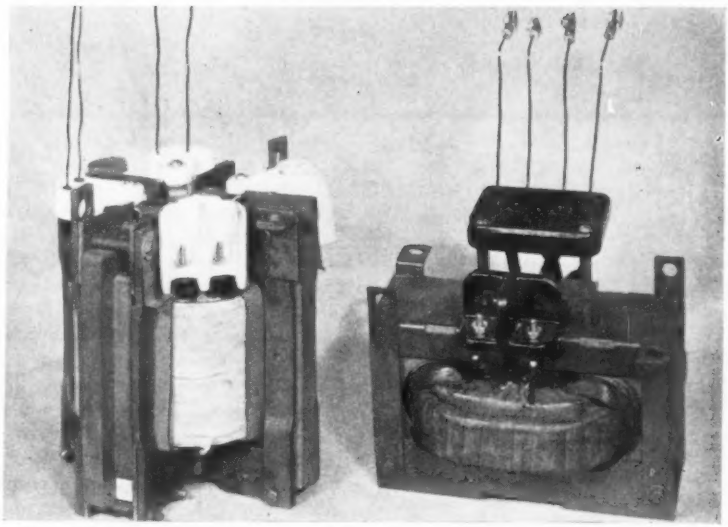
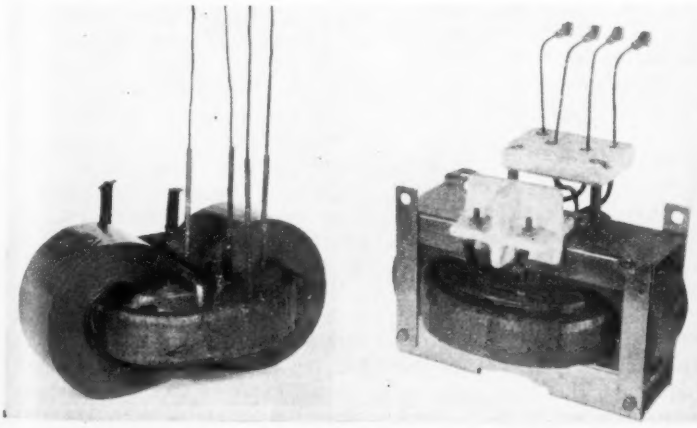


The comparative size of a wound core transformer and an old type transformer of the same rating is shown in the photograph above . . .

The new wound core type transformer is shown below with and without the clamping structure and terminal boards. At right, a partially assembled core is shown in the automatic winding machine . . .



APPLIANCE Service

Proper Installation Of Water Heaters

By Allen Parker

ELECTRIC water heaters, properly installed, usually will give years of trouble-free service, and probably will require less attention than any other domestic appliance. However, an improperly installed heater not only proves unsatisfactory in service, but is expensive and, in some cases, a menace to safety.

By "properly installed" we mean: (1) properly located for economy of operation and long life of heater; (2) properly adjusted temperature for safety and extended life of heater; (3) properly protected with fuseable plugs and pressure relief valves for safety; and (4) properly connected for satisfactory hot water service.

Proper location is one of the first essentials of a good water heater installation. A modern square-type water heater is shown here, properly installed in the kitchen near the sink where most hot water is usually required in the average residence.

Last but not least in importance, a few instructions to the customer as to the proper care and operation of the heater will undoubtedly save future service calls.

A good location is the first requisite of a good water heater installation. The usual routine is to ask the customer where she had rather have it placed without explaining to her the advantages of the most suitable location. The customer may admire the heater a great deal and decide on a spot in her kitchen, especially if it harmonizes with the other equipment. In many cases this may be the ideal place but if it isn't, her personal preference may outweigh, in her own estimation, the value of changing it.

The best place for the water heater is as near as practical to the most frequently used faucet. This will save heat losses and make the hot water more convenient by having shorter "draw offs." In the average home the kitchen sink is used more than any other outlet.

Some customers do not care to have the heater placed in the kitchen because of lack of space or other reasons, and therefore a good many are placed in the basement. A good basement often is found to be the ideal location, but a damp basement has caused many a heater to lose its beautiful appearance, start rusting and have its useful life shortened. The knowledge that a basement sometimes gets flooded often has been obtained too late to save the heater from the necessity of being dismantled to have the insulation, wires, and thermostats dryed out.

Exceptional circumstances may require placing the heater in the attic but in a few such instances, where a residence is on a high location, the pressure has been known to drop low enough to partly evacuate the heater and cause the heating element to burn out.

Temperature adjustment is the next important check to make on the newly-installed heater. Some service men may think this is of relatively small importance, and it is probable that the temperature adjustment is checked on very few new heaters. A complaint of not enough hot water may result in the service man adjusting the thermostat higher, but what about the adjustments set too high at the factory?

The chances are that there will be no complaint made on them until trouble develops, and expensive trouble is sure to develop if excessive temperatures are maintained over a period of time.

The ravages of high temperature in a water heater tank are indicated in this tank which has been in operation only 25 months. Oxidization started a leak. When opened with a torch, the tank was found to have a precipitation more than ¼-inch thick inside.

Most manufacturers are using copper-bearing steel for their tanks to insure long life. Tests show that these tanks give service for a reasonable number of years at a temperature of 150 degrees or lower. Above this temperature the period of life of the tank is reduced by about one-half with every additional 15 degrees. This results from precipitation, scale and corrosion forming on the inside of the tank and finally oxidizing it.

High temperatures also are safety hazards from the standpoint of both personal burns and explosions. Similar conditions can also occur when furnace or jacket heaters are connected in series with the elec-

tric water heater unless some method is provided to prevent it. An uninsulated tank connected in series between the furnace coil and the electric water heater will radiate enough heat to prevent excessive temperature. Such an arrangement will also prevent warping of thermostats from overheating.

Although safety devices are mentioned above as third in importance, they should be given first consideration. These devices may provide pressure relief, temperature relief, vacuum relief or combinations of all three. They function only when unusual conditions occur and become dangerous.

This square-type tank has been turned up to show cut-off and safety valves assembled as an integral part of the heater. A pressure relief valve connected directly to the heater under the bottom provides maximum protection.

The likelihood of these devices coming into general use may be remote, but the safety they afford in cases of extreme emergency, in comparison with their relatively small cost, makes them most desirable.

The pressure relief valve is most commonly used, and provides ample protection for the average heater. This type valve can be purchased for any range of pressure setting, ordinarily 125 to 150 lbs., and eliminates the possibility of higher pressure in the tank. It should be of an approved type and connected in the cold water inlet, without a valve of any kind between it and the tank.

The temperature relief valve or a combination temperature and pressure relief valve can be used most advantageously where the electric heater is connected in series with a furnace or jacket heater. It will provide protection against the temperature rising too high in the insulated electric tank. This type valve should be mounted in the top of the tank where the hottest water is found.

Vacuum relief valves have a definite value where fire pumps, etc., on the mains could cause vacuation and collapse of the tanks although they are not considered a practical necessity.

The final suggestion is to instruct the customer in operation and care as well as other details that will enable her to avoid service calls. Tell her how the piping is arranged so that she can cut off the heater and drain the pipes without draining the heater, should freezing weather or other conditions require it. Explain how the precipitation forming on the heating units falls to the concave bottom and may be flushed out through the flushing valve, thus keeping the water clear. These and suggestions of your own will result in a better satisfied customer, and promote more electric water heater sales for you.

Economical Salvage Of Copper Tubing . . .

By C. L. Howard

MANY appliance service shops find it economical to salvage short pieces of copper tubing during odd moments that cannot be utilized otherwise. Short pieces of tubing that would otherwise be discarded may be joined into usable lengths by lap joints that will prove entirely satisfactory.

Only a few simple tools and a good soldering outfit are required to make satisfactory lap joints. In many instances the value of the salvaged tubing will be considerably greater than the little labor required. A good lap joint can be made on the job in five or ten minutes, but only a fourth that time will be required in the shop where better facilities are available and a number of joints are made up at a time.

The first step in preparing the tubing for a lap joint is to have the ends perfectly square. A tubing cutter does the best job. Where a hacksaw is used the inner edge of the tubing must be cleared of all burns and flakes.

Next, the length of tubing is fitted into flaring clamp so that about three-fourths of an inch extends beyond the clamp, ready for expanding.

There are two good methods of expanding soft, annealed copper tubing. One way is to use a two diameter expanding tool, such as is shown in the accompanying diagram. The smaller diameter of this tool is slightly less than the inside diameter of the tubing, while the larger diameter is slightly larger than the outside diameter of the same tubing. Between the two diameters of the tool there is a smooth taper. The approximate proportion of this taper to the size of the tool is shown in the drawing. These tools may be turned out on a lathe easily to fit standard tubing sizes.

With the flare clamp and tubing held in a vise the next step is to gently tap the tool into the tubing, so that the taper will expand tubing for the desired length. If done carefully there is no danger of cracking or weakening the tubing. A few gentle taps around the side of the tubing will release the tool

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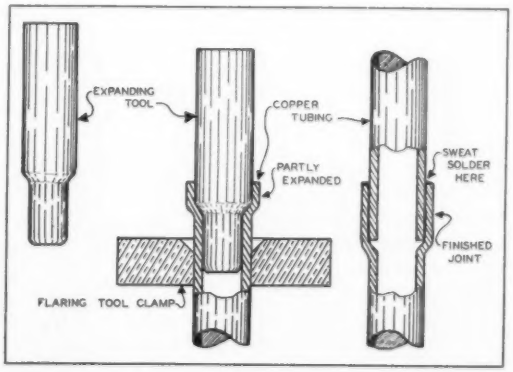


Procedure for making lap joints in copper tubing permitting salvage of short lengths.

MOTOR Service

Small Points of Importance In Armature Winding

2—*Insulating Pads*

By A. C. Rce

Railway Motor Engineer
Westinghouse Electric & Mfg. Co.

REALIZING that many winders fail to appreciate the importance of many minor factors in armature winding and insulation, Mr. Roe, author, engineer, and practical workman, has written a series of short articles, discussing only one phase of the subject at a time. The following article is the second of this series. Others will follow.

IN ALL armatures using preformed and insulated coils, two narrow strips or bands of insulation are used, one at each end of the armature, separating the top layer from the bottom layer of coil ends. These strips are made into various combinations and have been termed pads, as one of their main functions is to act as padding to fill the space between the layers of coil ends. These pads are an important part of any armature winding.

The shape of the pad, number of layers of material, width of each layer, and kind of material all vary with the type of coil, voltage rating of the winding, type of conductor used in the coil, shape of coil ends, and cross section of coil ends. The width and shape of these pads are also affected by the length of the slot sections of the armature coil and whether fillers are used in the slots between top and bottom coil halves.

These pads perform a number of important functions that vary according to the type of winding. One general function is to insulate between the crossing coil ends, since the top half of one coil end passes over a number of other bottom coil ends. Thus we have many points where a difference of potential exists.

Another general function is to act as a cushion between irregular shaped coil ends, since many types of coils, when wound into an armature, present a saw-tooth effect when the exposed top surface of the coil ends is viewed from the side. Thus these pads must resist shearing actions also.

One of their major functions is to form a solid structure to support the top layer of coil ends, and to prevent their collapse or bowing under band pressures. Consequently, these pads are not selected in the original winding on a hit or miss basis, but are carefully fitted to the winding. Some of the factors that should be watched for will be discussed.

An armature using class B insulated coils is shown in Fig. 1, where 0.035 inch thick treated asbestos is used as pads, there being two strips at each end of the armature. This two-layer pad fills the space between the two layers of coil ends. This material was selected because it is soft, flexible, tough. The outer edge of each strip is kept tight against the inside end of the coil; and the inner edge, next to the core, is kept flush with the end of the ground insulation or wrapper on the bottom coil half.

An armature wound with heavy strap copper coils and insulated for 1500 volts is shown in Fig. 2. The pads between coil ends on this type of armature are two layers of mica and fishpaper enclosed in friction-cloth casing. In Fig. 2 the front pad has its outer edge brought snug against the commutator necks, and its inner edge flush with the end of the wrapper on the bottom coil half. At the rear end, the outer edge of the pad is brought out to the start of the loop on the coils, and the inner edge is flush with the end of the wrapper on the bottom coil half.

A fixture for turning the armature and holding up the throw coils is also shown in Fig. 2. It is clamped around the commutator, and by the use of wood blocks on the commutator it can be made large enough for other armatures.

In making the mica and fishpaper pads used for armatures of the type shown in Fig. 2, two layers of mica and fishpaper are used. The strips are arranged with the fish-

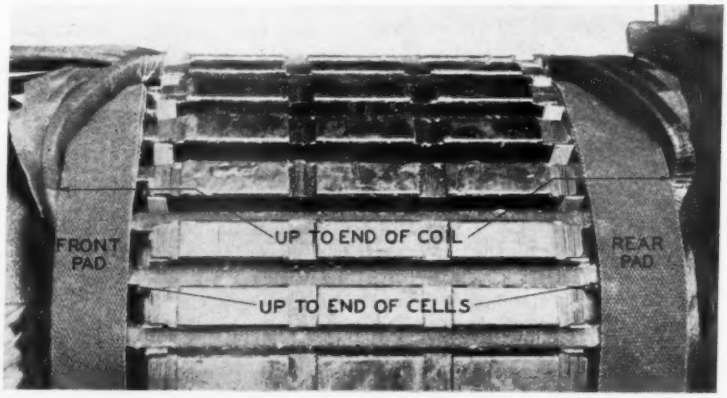


Fig. 1—At each end of the armature shown double treated-asbestos pads are being placed between the end windings . . . . . .

paper surface outside. These strips are laid on a piece of 0. 196-inch thick friction cloth, as shown in Fig. 4 (a). The width of the friction cloth is three times the width of the mica and fishpaper less one-half inch. The outer edges *B* and *C* are folded over on top of the mica and fishpaper as shown in Fig. 4 (b). This arrangement makes a pad with five layers of material. The outer surface of the pad will be sticky, because of the friction cloth, and it should be coated with paraffin or powdered soapstone to make it easy to handle.

We have discussed only the flat type of pad in which all layers of material are the same width, but many armatures use coils that produce a tapered space between the layers of top and bottom coil ends, as shown in Fig. 3(a). In some windings the dimension *J* is zero, that is, when fillers are not used between top and bottom coil halves in the slots. But when fillers are used, *J* should be remembered when making the end pads. Dimension *K* will vary according to the type of coil, etc., but the space between the coils shown shaded in Fig. 3(a) is tapered between lines *A-A* to *G-G*.

To make a pad to fit the shaded area, different width strips are built up, as shown in Fig. 3 (b). The outer edges are all kept flush and all strips sewed together in four or five places around the circumference of the pad when it is completed.

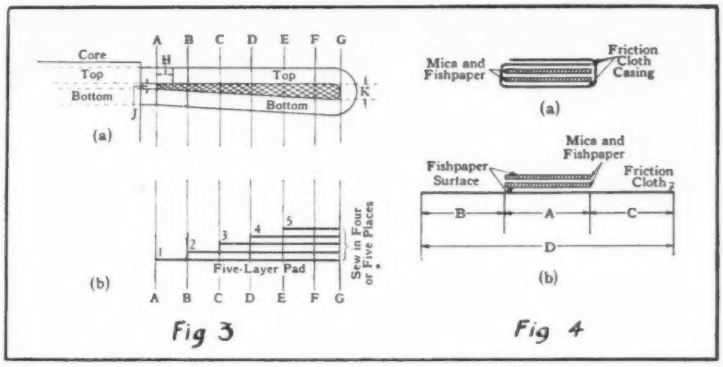


Fig. 3—These sketches show how a layer pad—in this case five steps—of treated duck or treated asbestos is calculated to fill the space in a coil-end winding . . . . . .
Fig. 4—Mica, fishpaper, and friction cloth make a combination pad for use between layers of coil ends. D=(3 × A)—½ inches . . . .

In building the stepped pad, strip 1 is first cut, and its width should extend from line *A* to *G*. The width of the strip depends upon whether fillers are used in the slot, as the dimension *J* will require the second strip to extend under the top cell extension *H*. In any case, the width of this second strip is critical. It should step back far enough to hold up the top layer without causing a lump. Then strips number 3-4-5 or more are used until the space is filled.

The stepped pads are important when winding wire-wound coils, since the upper part of the coil ends must be supported. If they are not, any bowing will change the shape of the coil ends and place strains on the conductors in the coil.

In any case, the pads between layers of coil ends must fill the space, so that when bands are wound over the coil ends, the band pressure should exert pressure through the top layer of coils, the pads, and the lower coil ends, and secure the whole winding to the coil support, without causing internal strains.

The pads used between coil ends, therefore, have an important place in the complete armature structure and should be selected and used with great care.

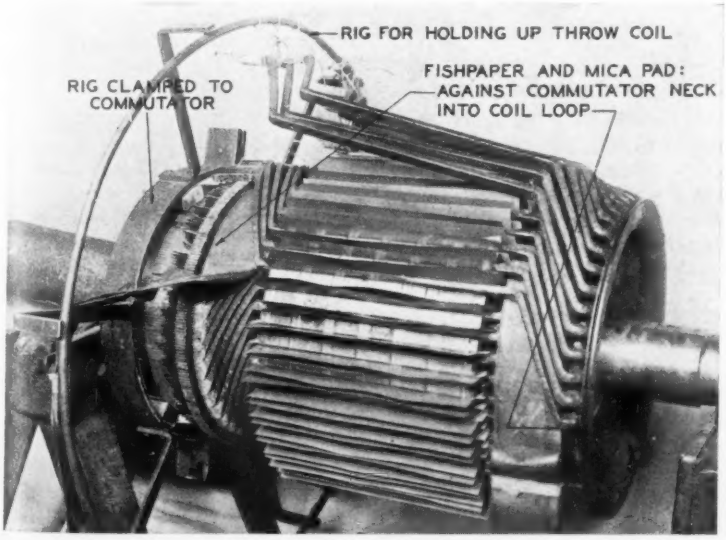


Fig. 2—Fishpaper and mica sandwich pads being placed between coil ends of a heavy strap-copper coil winding of an armature. Shown here also is a rig for holding up the throw coils and for turning the armature during winding . . . . . .

Economical Salvage Of Copper Tubing . . .

(*Continued from page* 31)

and allow it to be withdrawn.

The second method of expanding copper tubing is done with an ordinary twist drill of the same diameter as the outside of the tubing. The drill is turned at very low speed in a drill press in *reverse* rotation. Instead of cutting, the drill rolls or presses the copper walls of the tubing into an increased diameter.

The ends of the tubing that are to be joined are now cleaned by buffing or scraping. Dip each end into a non-corrossive flux and press the joint together. Heat the joint with a torch or very hot soldering copper until solder held against the tubing will melt quickly. Allow a small amount of solder to flow into the joint by capillary action.

POWER COMPANY News

Approval Given PWA Power Projects . . .

Public Works Administrator Harold L. Ickes recently announced Presidential approval of PWA allotments to 45 power projects having a total estimated cost of $28,327,693. These are the first PWA allotments for power projects under the 1938 PWA Act.

The PWA allotments total $18,689,829 including both loans and grants. The difference between the allotments and the total estimated cost of the projects will be supplied by the applicants.

Twenty-one of the projects are located in the South and have an estimated total cost of $22,318,848. Allotments in the form of loans and grants for this group total $10,626,172.

Examination of these projects indicates that, if erected, many of them would operate in competition with existing privately owned power facilities. Such projects are subject to the terms of the power policy enunciated by Administrator Ickes, that is, that PWA would make allotments to municipalities for power projects which would compete with existing systems only after the municipalities had satisfied the administrator that they had been unable, after reasonable efforts made in good faith, to acquire upon reasonable terms and conditions the facilities of the existing private utility with which the applicant might otherwise be in competition.

Largest southern projects included in the 45 approved are: steam-electric plant for San Antonio, Texas, $6,137,300; electric plant addition for Jacksonville, Fla., $2,503,000; and new electric plant for Meridian, Miss., $1,418,182.

Maryland Utilities Association Meets

R. C. Brehaut of the Washington Surburban Gas Company, has been elected president of the Maryland Utilities Association succeeding D. E. Stultz of the Potomac Edison Company, who is retiring to become a member of the board of directors.

Other officers of the group, elected at the annual meeting held in Baltimore recently, are: W. D. Haley, Washington Surburban Gas Company, secretary; R. F. Bonsall, Consolidated Gas, Electric Light & Power Company, reelected treasurer; Joseph A. Stoll, Baltimore Transit Company, vice-president. Harold G. Haydon and R. L. Smith, Potomac Electric Power Company, and Lewis Payne, Eastern Shore Public Service Company, were reelected directors; Harold Schell, Hagerstown Light & Heat Company, was elected a new board member.

At a meeting of the electric group of the association H. C. Thuerk, Utility Management Company, talked of "Distribution Factors to Be Considered in Selling the Profitable Load."

Utility News Briefs

Tennessee Electric Power Company won first prize under the August D. Curtis Award, offered annually to the electric utility company which, during the twelve months shows the greatest contribution to the advancement of artificial illumination of interiors or exteriors of commercial and public buildings in the United States. Harry Curtis, manager of the lighting sales department, received the cash award.

* * *

On Sunday, June 26, the *Arkansas Gazette*, largest newspaper in Arkansas, published a 10-page special section commemorating the 25 years that Harvey Couch, president of the Arkansas Power and Light Company, has been associated with the electric power industry.

* * *

The Houston Lighting and Power Company was issued a permit recently for a million dollar addition to its Gable Street plant. The addition is part of a big expansion program announced for 1938. It will increase the plant's output from 20,000 kilowatts to 45,000 kilowatts.

* * *

Thomas Ozlin, State Corporation Commission, Virginia, announced recently that a conference of utility executives of Virginia will be called soon to discuss a long-range plan for power developments in the state.

* * *

First use of purchased power in Arkansas oil fields will follow the completion of a contract between the Arkansas Power & Light Company and the Phillips Petroleum Company. The contract covers the demand up to 3,500 kilowatts at an 80 per cent load factor. Annual use will amount to approximately 25,000,000 kwh.

* * *

Following a conference with private utilities and 27 cooperatives of Georgia, an order was released by the Public Service Commission of Georgia requiring public utilities to file plans for extensions ten days before construction is started. Although cooperatives do not come under the jurisdiction of the Commission, they have agreed to abide by the same regulations which it is hoped will bring about coordination of public and private rural electrification activities in Georgia. It is hoped that this coordinaton will prevent the overlappng of proposed extensions by public utility companies and by cooperatives under the Rural Electrification Administration, and that it will prevent the interference of one type of development with the other.

* * *

A revision in commercial light and power rates of the Birmingham Electric Company that would result in an annual saving of more than $200,000 for commercial customers of the utility, was recommended to the Alabama Public Service Commission recently by its chief engineer, I. F. McDonald.

* * *

The Alabama Power Company's new 110,000-volt line from Mitchell Dam to Mobile, built at a cost of approximately $1,800,000, was cut in for service July 8. The new line is 193 miles long and is designed for ultimate operation at 154,000 volts. It was constructed to deliver more power to Mobile where many new industries are under construction or are being planned. In addition, power is furnished through

Mobile to the Mississippi Power Company for its consumers in cities and towns along the Mississippi coast.

Committee Chairmen Named By Exchange .

Preparing for another year of active study and investigation of the various problems that confront the electric light and power companies, the new administration of the Southeastern Electric Exchange, headed by President Bryan C. Hanks of Florida Power & Light Co., has appointed chairmen for the sections and subcommitees, who will direct the activities of their respective groups during the coming year.

S. P. Vecker, general sales manager, Carolina Power & Light Co., has been reappointed chairman of the Sales Section. Last year under Mr. Vecker's able leadership, the Sales Section concluded a most successful program in the field of load building.

Wells Stanley, vice president in charge of sales, Alabama Power Co., has been appointed vice chairman of the Sales Section.

The Engineering and Operation Section will be headed by R. I. Butterworth, general superintendent, East Tennessee Light & Power Co., who succeeds C. B. McManus, of Georgia Power Co. This section has a splendid record for useful work in the dissemination of engineering and operating data in the field of generation, transmission and distribution.

Herman W. Boozer, general auditor, Georgia Power Co., succeeds H. E. Simpson, of Florida Power & Light Co., as chairman of the Accounting Section. The work of this section has proved of great value to member companies in the past few years, when so many important changes and developments have occurred in utility accounting methods.

Recognizing the need for further study and development of employee programs and activities, the Exchange has created a new section designated as the Employees' Activities Section. W. A. Moore, vice-president, Mississippi Power & Light Co., has been named chairman, and J. M. Stafford, Georgia Power Co., will serve as vice chairman.

Because of the wide range of activities included in the scope of the Sales Section, the work of this section will be carried on as in the past through a number of subcommittees. The work of the Merchandising Committee has been extended this year to include the activities formerly handled by the Dealer Cooperative, Commercial Cooking and Commercial Refrigeration committees, which have been discontinued as individual groups. O. M. Jackson, merchandise manager, Georgia Power Co., will serve the Merchandising Committee as chairman. Vice chairman is L. M. Taylor, residential sales manager, Mississippi Power & Light Co.

Personnel to direct other subcommittees of the Sales Section is as follows: Sales Promotion and Advertising Committee, chairman, Bernal Clark, advertising manager, Florida Power & Light Co., vice chairman, Clarence Killian, advertising manager, Alabama Power Co.; Industrial Power Committee, chairman, Edwin M. Clapp, power sales engineer, Georgia Power Co., vice chairman, C. N. Rackliffe, manager industrial sales, Carolina Power & Light Co.; Rural Electrification Committee, chairman, E. C. Easter, manager of rural and towns division, Alabama Power Co., vice chairman, Ira Knox, agricultural engineer, Tennessee Electric Power Co.; and Lighting Committee, chairman, Paul S. Gage, manager lighting sales, Tennessee Electric Power Co.; vice chairman, W. B. Shank, commercial engineer, Virginia Public Service Co.

H. E. Simpson, left, of Florida Power & Light Co., has been appointed treasurer of the Southeastern Electric Exchange. J. W. Talley, right, continues as executive secretary of the Exchange. Section chairmen for the coming year are shown below. Reading from left to right, S. P. Vecker, Carolina Power & Light Co., reappointed chairman of sales section; R. I. Butterworth, East Tennessee Light & Power Co., Chairman of engineering and operating section; Herman Boozer, Georgia Power Co., chairman of accounting section; and W. A. Moore, Mississippi Power & Light Co. chairman of the newly created employees activity section . .

ASSOCIATION Activities

New Orleans Association In Intensive Campaign .

DURING the hot mid-summer season, a spirited refrigerator campaign has been in progress in New Orleans. It was sponsored by the Refrigeration Division of the Electrical Association of New Orleans, New Orleans Public Service, Inc., all manufacturers of refrigerators represented in the city, and nearly fifty retail dealers.

The campaign period is from July 1 to August 13, though the wheels were set in motion June 12, when a breakfast was held at the St. Charles Hotel for dealers and their salesmen, attended by approximately 250 people.

A second breakfast was held June 27, addressed by Dr. G. W. Allison, of the Modern Kitchen Bureau, New York. Other breakfasts were held July 12 and July 26, and the final one is to be held as soon as possible after the close of the campaign.

The campaign is known as a "Sweepstakes Contest" and a total of thirty prizes were awarded salesmen at each bi-weekly meeting, based on their sales during the preceding two weeks. Contestants were required to be present at the meetings to participate in awards.

Previous to the campaign, each salesman was given a prospectus containing a considerable amount of information regarding electric refrigeration, of value to the salesman in learning and presenting his story. At the breakfasts, the popular "I.Q." method was used in awarding a number of cash prizes to salesmen.

Several men were called up on the platform and asked previously selected, simple questions, the answers to which were in the prospectus. This was designed to get the men to familiarize themselves with the information in it.

A large two-color, heavy paper booklet was prepared for dealers and their salesmen, listing and illustrating the various types of billboards, street car ads, window streamers, etc., that would be used to appeal to the public; also outlining in detail the rules of the contest and giving other information pertinent to it.

On the front cover of this book, in large letters, was this eye-catching statement: "24,000 Families (in New Orleans) Can Afford to Own the Electric Refrigerators That You Have to Sell—But Why Don't They Buy?"

Salesmen gather for a "kick-off" breakfast in New Orleans at the start of a most successful six-week refrigeration sales campaign. . .

The entire sales activity was built around a "Prize Statement" contest, twenty electric refrigerators being given as prizes to householders for the best 25-word statements on "Why an Electric Refrigerator is Cheap to Buy—Cheap to Use."

This prize contest theme was selected because of the tremendous success of contests in recent national advertising campaigns. An extensive newspaper and radio advertising campaign was conducted to arouse public interest in electric refrigeration during the period of the contest.

Early reports indicated splendid response by the public to this concerted effort on the part of the dealers and others to make the summer of 1938 a record-breaker in electric refrigerator sales in New Orleans.

New Officers Selected For San Antonio Association .

The annual election of officers for the San Antonio Radio and Refrigeration Trades Association was held recently with the following results: Royal P. James, Stowers Furniture Company, president; E. R. Moon, Joske Bros. Company, vice president; and George S. Jeffers, Westinghouse Electric and Manufacturing Company; W. T. Moreland, Southern Equipment Company; D. Berryhill, Peaslee-Gaulbert; A. W. Noll, A. F. Beyer Company; and Fred Lewis, Karotkin's Furniture Company, all as directors.

Leon Walthall, who has served as secretary and treasurer for the association since its organization, was voted an honorary life secretary, and the office left open. It is the plan of the association to rotate the duties among the members, appointment to be made by the president.

Charles Lorenz, King Furniture Company, was retiring president.

The association went on record as endorsing and pledging its support to the "Sales Mean Jobs" campaign.

Washington Institute Closes Successful Campaign . . .

The Electric Institute of Washington announces, at the close of its Spring Refrigeration Campaign, that the quota of 3500 refrigera-

(*Continued on page* 44)

WHOLESALERS' Activities

McDonald Electric Company, Inc., Opens Ft. Lauderdale Branch . .

The McDonald Electric Co., Inc., of Miami, has opened a Ft. Lauderdale branch at 225 SW First Ave., with W. T. (Bill) Clower as local manager.

Mr. Clower has been active with the company since its formation in 1925. During that time he served as manager of the West Palm Beach branch office. He is widely known throughout this part of the state among electrical contractors and electric appliance dealers.

The firm serves the electrical industry, including electrical contractors and appliance dealers.

Personnel of the local branch includes Robert Griffith, H. W. (Heinie) Sommerfeld and Dorothy Clower.

R. S. McDonald, president of the firm, headquarters of which is 367 NW Sixth Ave., Miami, was guest of honor at an open house held for contractors and appliance dealers.

New Wholesale Supply Co. Opens In Houston . . .

Formal opening of the Gross Electric Supply Company, wholesale distributor of electric fixtures and wiring materials, was observed recently in the firm's spacious new quarters at 708-10-12 Crawford Street, Houston, Texas.

Featuring fixture display rooms in which all the fixtures are connected with electrical current, the firm received praise of visitors last week for its all-modern arrangement of showrooms, each room displaying its own classification of fixtures, such as the crystal room, bedroom, bathroom, living room and lantern room.

A branch of the Gross Electric Company of Denver, the company selected Houston for the opening of a new wholesale store because of the bright business outlook for the city and territory, Mr. Gross said.

New Management Announced For Oklahoma Distributor . . . .

The Southwest Radio and Equipment Company, of Northwest Tenth Street, Oklahoma City, Philco distributors for the state, announces a change in management and sales personnel. New officers are Mrs. Ella-Gayle Wooten, president; Jeff Williams, vice president; and J. P. Stewart, secretary-treasurer and general manager.

Mr. Stewart has been connected with the Philco line in Oklahoma for the past ten years. He was sales manager for Spurrier's Inc., before taking his present position.

As distributors for the Philco line the company has also just added the new Philco "Cool Wave" air conditioning unit. The company also handles a complete line of fans for the residential and commercial application.

San Antonio Distributor Occupies New Home .

The Southern Equipment Company, one of the oldest and largest distributors of radio, electrical and automotive parts, supplies and equipment in Southewest Texas, moved into larger quarters this month on S. St. Mary's Street, near Villita, in San Antonio, Texas.

The new location provides approximately 25 per cent more floor space, has its own parking lot, and is accessible through both front and rear entrances. Show and display rooms are located on the ground floor, as well as general offices and small parts stocks.

In addition to serving as distributor for RCA-Victor products including radio receiving sets, combination sets, records, tubes, and sound and testing equipment, the firm is distributor for Kelvinator, Westinghouse, Universal, Emerson, Hamilton-Beach and Voss appliances, and Permutit water softeners.

In its new location, Southern Equipment Company has arranged to stock a complete line of electrical contractors supplies, and will give close attention to this trade in the future.

Officials of the firm are: Reagan Houston, president; O. J. Brunner, vice president; and J. Sidney Allen, secretary-treasurer. Frank R. Atwater is general manager of the business, with E. F. Oelkers, assistant manager.

Wholesalers' Association To Meet In Chicago .

The semi-annual convention of the National Electrical Wholesalers' Association will be held at the Drake Hotel, Chicago, Illinois, October 18 to 21, 1938, according to announcement by E. Donald Tolles, managing director.

Distributors For Apex Are Appointed . . .

Among new distributors recently appointed by Apex Rotarex Corporation of Cleveland, Ohio, manufacturers of washers, ironers, cleaners and refrigerators, according to announcement by Charles W. Smith, general sales manager, are the following:

Universal Distributing Company of Richmond, Virginia, to cover Virginia and Southern Maryland;

Steves Distributing Company of San Antonio, Texas, to cover Texas and surrounding territory.

New home of Southern Equipment Co., one of the oldest and largest distributors of radio, electrical and automotive equipment in Texas.

MANUFACTURERS' News

General Electric Radios Offer New Features .

Engineering developments of a major character, designed to remove both human and mechanical obstacles to better reception of broadcast programs, are the distinguishing mark of the line of radio receivers for 1939 that have just been announced by the General Electric radio division, Bridgeport, Conn.

On the human side, a development characterized as time-tuning, making it possible to preselect any one of five stations for any 15-minute period over a full 24-hour span, tends to make ability to read newspaper program schedules the sole qualification for anyone who wants perfectly tuned broadcast reception. Once the day's and night's programs have been chosen and set up in advance, it is not necessary to go near the receiver. It will turn on and off, change stations, and perform otherwise manual functions automatically.

More important to radio engineers, however, is the "beamascope," a built-in, scientifically synchronized antenna and ground connections. Radios equipped with the beamascope may be moved about a room or home at will and plugged into a socket in the same manner as a floor lamp. The device reduces local static interference and makes for finer reception in noisy areas. The antenna circuit, located in the console cabinet, is completely shielded by a circular screen which rejects the electrostatic portion of the broadcast signal and accepts only the electromagnetic portion. With the beamascope no antenna or ground connections need be employed.

Every receiver in the new line with one exception features automatic tuning and most are equipped with keyboard touch tuning, an improved version of the automatic touch tuning introduced last year by General Electric.

Polaroid Distributors Rapidly Appointed .

With production reaching plant capacity in July, Polaroid Lighting, Inc., expect to have national distribution of the first glareless lighting unit, a desk lamp, virtually completed by the middle of August. Their program of trade development and education, initiated this spring with a series of lectures in leading cities by George W. Wheelwright, 3rd, co-developer of the light-controlling material, Polaroid, is being advanced rapidly, the company advises.

As an initial step in promotional effort, the company have issued a Dealer Plan Book to be distributed to retailers through the licensed manufacturers selling the Polaroid lamp. This book outlines a proposed selling system including sales meetings, demonstration procedure, test sales campaigns, direct mail activities, and educational tie-ins. It describes the dealer helps offered retailers which include consumer folders, two-plane display card, newspaper matrix service, salesmen's primer, and special demonstration lamps.

Orders for the new Polaroid lamps have been accepted for the past two months and the Polaroid licensees report a number of repeat orders received prior to actual distribution from dealers who have sold from literature and photographs.

In this attractive new display offered by Hotpoint, action is employed to catch the eye of the passerby. Attached to the young lady's hat, on the large panel, is a bow and ribbons which blow gently in the breeze of an electric fan. It was specially designed for summer showing. . . . . .

CHROMALOX SUPER-SPEED RANGE UNITS

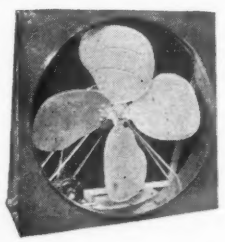
The mark of a fine range

and so recognized by range buyers everywhere. And for replacement they simplify servicing and cut inventories. Write us or our nearest representative.

ATLANTA, Ga.—C. B. Rogers, 1000 Peachtree St. DALLAS, Texas—Elgin B. Robertson, 1215 N. Zangs Blvd. RALEIGH, N. C.—W. R. Phillips. OKLAHOMA CITY, Okla.—Paul Berry, 3128 N. W. 26 St.

EDWIN L. WIEGAND CO., 7600 Thomas Blvd., Pittsburgh, Pa

Thousands of Homes Will Install Silent-Night Attic Fans This Summer



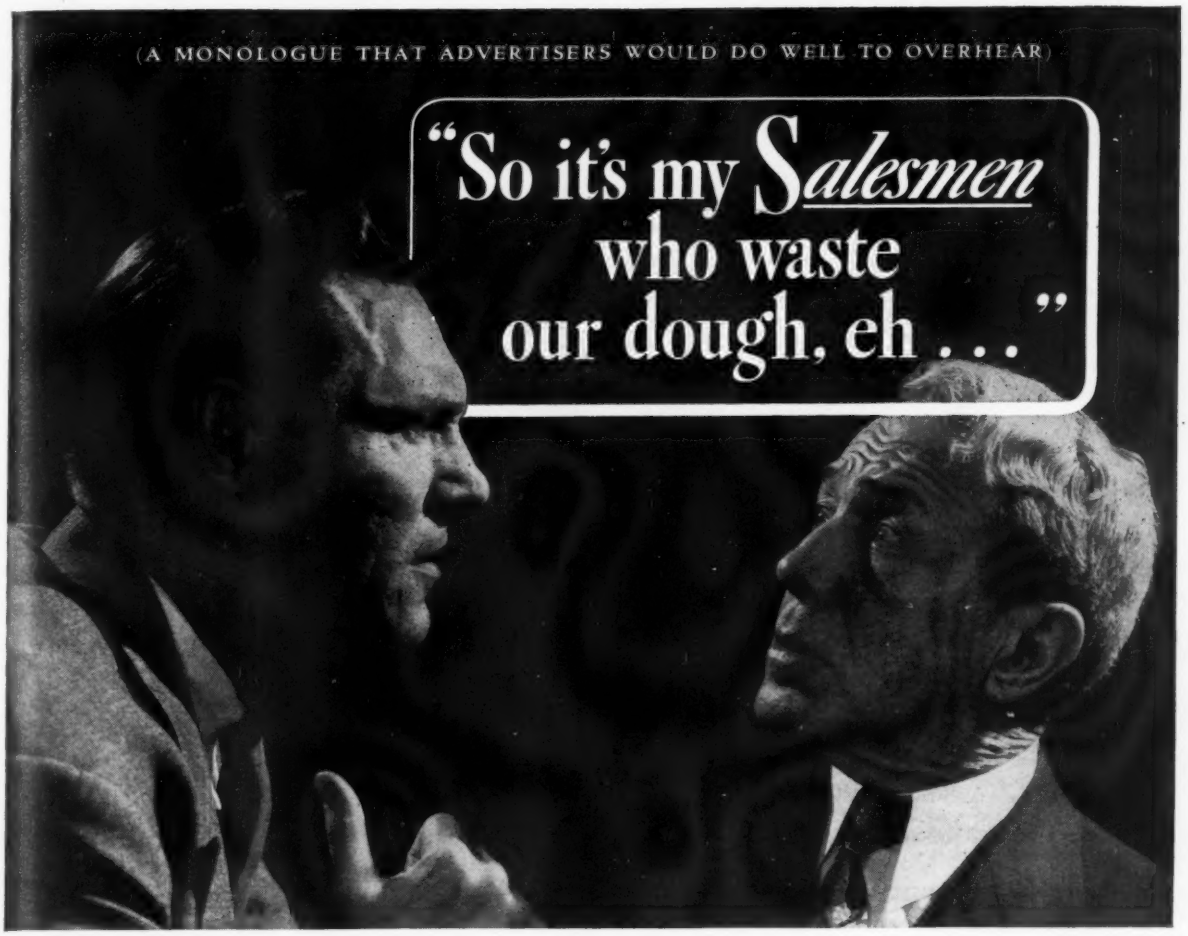
Because only a modest investment is required. SILENT NIGHT ATTIC FANS will give home owners cool comfort on hot summer nights. They cost so little to operate and are so quiet.

Get your share of this rapidly growing business.

Write For Information.

DALLAS ENGINEERING CORP.

1115 HALL ST., DALLAS, TEXAS



roared the Sales Manager to the Treasurer . . .

"I think our salesmen's 'swindle sheets' are too high, do you? Claim they should spend money only on prime prospects, hey? Well then, why don't we do the same with our advertising appropriation?

"You tell me that every cigar a salesman hands out these days should bring in an order, and I'm telling you that more of our advertising money should be concentrated in the electrical industry of the South . . . to cultivate the men our salesmen have to sell. For instance, let's make sure we're doing an impressive job in ELECTRICAL SOUTH, the publication that our prospects look to for progressive ideas and dependable news. That'll give us what we need *right now*: selling help *where it counts*, at less cost than a cheap cigar per prospect.

"If you'll switch a bigger chunk of our advertising budget to ELECTRICAL SOUTH, I'll confine my sales expense to our hot prospects."

"Okay, wild man," said Treasurer MacTavish, "it's a deal!"

Highest editorial standards and publishing integrity.

ELECTRICAL SOUTH

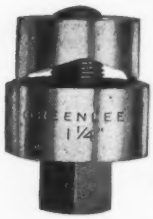
(bears the twin hall-marks of known value)

Proved reader interest in terms of paid circulation.

SAVE Time and Money with Greenlee Tools

Hydraulic Conduit Benders

Greenlee Hydraulic Benders are time and money savers, because they bend conduit quicker and easier than by other methods. In addition, they make smooth, even bends, eliminating many fittings and making it easy to pull in wire and cable. They are simple to operate and are readily portable.



Knockout Tools

Greenlee Knockout Punches and Cutters are time savers and profit makers, because they make it easy to enlarge holes in switch boxes, cabinets, etc. They form clean-cut holes quickly and accurately, without reaming or filing.

Other Greenlee Tools

Hydraulic Pipe Pushers
Joist Borers Bit Extensions
Electricians' Bits

Let us send Complete Information.

GREENLEE TOOL CO.
1707 Columbia Ave.
ROCKFORD, ILLINOIS

GREENLEE TOOL CO., 1707 Columbia Ave.
Rockford, Illinois

Please send complete information on:

☐ Knockout Tools ☐ Conduit Benders

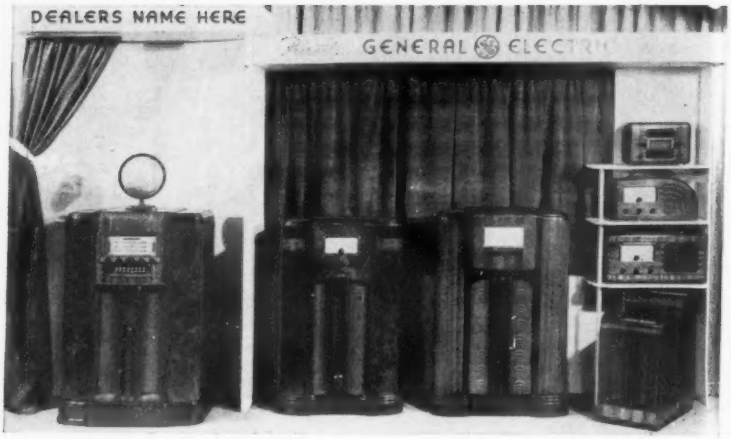
Name _____

Street _____

City _____

State _____

My Jobber is _____ ES-8-38



G-E Radio Floor Display Has Custom-Built Appearance .

The dealer's name in brilliant, die-cut chrome letters, three inches high, in the heading, "John Q. Dealer Presents General Electric Radio" makes this rich-looking background display seem custom-built for each dealer. No other copy appears on the display, thus adding to the made-to-order impression. Indicated in the accompanying photograph is the place where the dealer's name is attached.

Created for the 1938 G-E radio line by General Electric's radio advertising department and L. A. Whitney of their display section, this background strikes a new de luxe note with its individual message and smart color combination that attracts attention and highlights the merchandise. The modern, off-center-balance design heightens this effect.

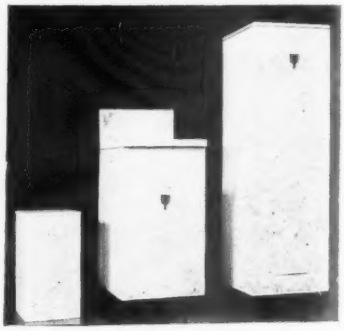
Seven radios can be displayed—three consoles, three table models and an armchair model—making a well-rounded self-contained radio department. The niche to the left was especially designed to feature one of the new G-E Touch Tuning consoles. The tie-back curtain and curved background carry out the impression of presenting and featuring the particular console shown there while a light reflector illuminates this section to add to the emphasis.

Three Models Featured In Water Heater Line . . .

Designed, built, and home tested to give full automatic hot-water convenience at the lowest possible operating cost, the new 1938 electric water heater recently announced by Westinghouse Electric & Manufacturing Company gives real hot-water service—easy, quick, and cheap. Three designs, the square, the round, and table top—ranging in capacity from 1 to 120 gallons, finished in gleaming white dulux, they provide a type for every home need.

The smartly designed square models are made in capacities from 1 to 120 gallons. Round heaters are available in 30, 52, 66, and 80-gallon sizes. Table top heaters—15 and 30-gallon sizes—with convenient porcelain work surface and backsplasher, provide additional counter space.

Dependable thermostats, efficient Corox heating units, special cold-water baffle, and Palco wool super



insulation are special features of the line. Other outstanding features are: tested and approved wiring, rigid steel protection for wiring, heating unit cover plate insulation, sturdy tank mountings, convenient relief valve opening, special heat trap, and electrically welded high test galvanized steel tanks or Monel metal tanks.

Electric Water Heaters Installed For Safety .

Four new electric water heaters have been installed in the new $300,000 New London, Texas, School, which was the scene of the disastrous explosion a year ago, in which 294 school children and teachers were killed.

The new school, replacing the one wrecked in the explosion, is now nearing completion and every precaution is being taken to prevent the accumulation of gas, that caused the disaster.

Hotpoint electric water heaters were specified to take care of the hot water requirements for the school, and to insure the utmost safety. The Hotpoint heaters include 2 10-gallon capacity heaters and 2 5-gallon heaters. All have Monel tanks.

News About People

H. D. Laidley, newly-appointed vice-president in charge of sales for the Standard Electric Manufacturing Corporation, of Toledo, Ohio, brings to Standard a background of more than 20 years experience in electrical appliance merchandising.

Immediately prior to assuming his new post, Mr. Laidley was general sales manager for the Appliance Division of the Brunswick-Balke-Col-

lender Company. Earlier in his career he was connected with the Federal Lamp Division of the National Lamp Works of the General Electric Company, and was general manager during nine of his twelve years there.

* * *

Warner M. Skiff, outstanding figure in the lamp and lighting industry, and since 1912 manager of the Nela Park Engineering Department of General Electric Company, has announced his retirement, effective June 30, following thirty-two years of continuous service.

Following graduation from Case School of Applied Science, Mr. Skiff joined the National Electric Lamp Association in 1906. Just six years after his start with the Association, which was one of the forerunners of the present Incandescent Lamp Department of General Electric Company, he was made manager of the Engineering Department.

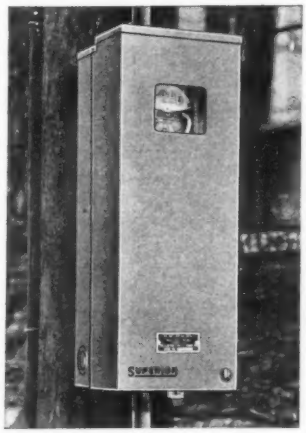
* * *

F. R. Kohnstamm has been appointed manager of the new agency sales department of Westinghouse

"KIDNAPPED KURRENT"

(polyphase style)

Each case of polyphase current diversion is expensive. If polyphase diversion was as prevalent as single phase — oh my!



Those big revenue polyphase meters of yours, ALL OF THEM, deserve proper protection from dirt, deviltry and diversion.

Superior polyphase Overall Meter Enclosures will protect those meters.

Write for Bulletin No. 379

Superior Switchboard & Devices Company

CANTON, OHIO

*Been at it Since 1920

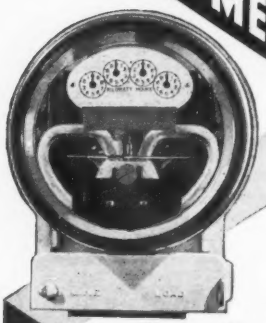
SUPERIOR

REG. U. S. PAT. OFF.

TWO-ELEMENT SINGLE-DISK Watthour Meters are

MODERN METERS

Sangamo Type L-2-S Two-Element, Single-Disk, Socket Mounting Meter



Sangamo Type L-2-A, Two-Element, Single-Disk Meter in "A" Base

For MODERN LOADS

These meters may be used on services either from network or other polyphase circuits. Bulletin No. 91 describes them in detail.

SANGAMO ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS

Electric & Manufacturing Company created recently, according to announcement by Ralph Kelly, vice-president in charge of sales. Mr. Kohnstamm will make his headquarters in Cleveland and will continue his present duties as manager of the Lighting Division also located there.

The new department will direct and develop sales policies, market outlets, advertising and promotion of all apparatus under its jurisdiction, sold through distributorships and similar sales agencies.

* * *

R. F. Dacus and **W. N. Corpening** were recently appointed to the Apex sales staff, according to announcement by Charles W. Smith, general sales manager, Apex Rotarex Corporation, Cleveland, Ohio.

Mr. Dacus will represent the company in the Carolinas while Mr. Corpening will represent it in the state of Virginia.

* * *

John M. Wicht, manager of General Electric's home laundry equipment section at Bridgeport, Conn., was named chairman of a committee which will contact the management companies of the utilities industry, following a meeting of the executive committee of the American Washing Machine Manufacturers Association at Chicago.

The object of the committee will be to induce the utilities to cooperate during National Washer and Ironer Week from October 23 to 29.

* * *

Edward V. Hickey has been appointed general sales manager of the General Shaver Corporation, manufacturers of the Remington Rand Electric Close-Shaver. Formerly general sales manager of the Gillette Safety Razor Corporation, Mr. Hickey brings to his new post a broad knowledge and understanding of the problems of the distributor and retailer.

* * *

E. O. Shreve, vice president of the General Electric Company in charge of sales, this month became the first recipient of the "Marston Medal," an award initiated this year by Iowa State College to honor outstanding achievement in engineering by its alumni. The award was presented to Mr. Shreve by Dr. Charles E. Friley, president of Ames College at the commencement exercises in June.

New Chromalox Features Announced By Wiegand

A new series of Chromalox Super-Speed range units, featuring "low-low" and simmering heat speeds, has just been announced by the Edwin L. Wiegand Company, Pittsburgh, Penna. Catalog sheets and illustrated broadsides describing this new development are now available.

This series incorporates an inner disc or center ring. The assemblies are interchangeable with the adaptors of the standard replacement unit and available in rated wattages of 1000, 1200, 1700 and 2000 on high, with as low as 160 watts for the simmering heat of the 1200 watt size.

These units have an unbalanced rating, the resistance of each circuit being different, and are for use with the series parallel type switches or load balancing switches which have a connected neutral.

The adaptor construction permits Chromalox units to fit all electric ranges, regardless of make.

C. B. Rogers

The Edwin L. Wiegand Company is now well represented in the South. Representatives include C. B. Rogers, Atlanta; W. R. Phillips, Raleigh; E. B. Robertson, Dallas; and Paul Berry, Oklahoma City.

New Trumbull Literature

Three new pieces of literature describing products of The Trumbull Electric Mfg. Co., Plainville, Conn., are now available for distribution, according to W. A. Edwards, of the sales promotion department. These new publications are:

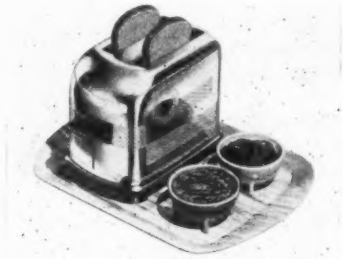
"Trumbullist"—July 1938. A complete and compact listing of Trumbull material designed primarily to enable the user quickly, conveniently and easily to find the material to suit his requirements. Equipment listed includes safety switches, service equipment, meter troughs, multi-breakers, magnetic starters, switchboards and panelboards.

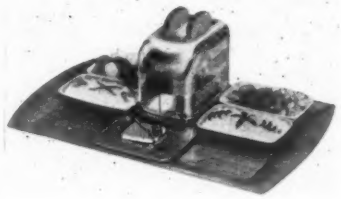
Bulletin 400—Covering a complete listing of open knife switches, fuse blocks and cutouts with dimensions.

Circular 176—An illustrated information folder on multi-breaker service and load centers.

Toastmaster Offers New And Restyled Line . .

The spot-light item in the 1939 Toastmaster line of McGraw Electric Co. is an eye-catching toaster-tray combination to be known as the "Toast 'n Jam Set." The 2-slice automatic pop-up type toaster, in the latest styling, is provided with a smart tray of honey-colored primavera wood, a current decorative favorite, and two bright-hued pottery dishes for jam or marmalade.





A notable sales point, aside from the outstanding attractiveness of the set, is that the retail price of $17.95 is little more than the regular $16 price of the toaster alone. This colorful new ensemble is a natural for display purposes. It will be extensively featured in Toastmaster's advertising campaign for fall.

Equal attention has been given to a complete restyling of the standard and deluxe Hospitality Sets, which are more luxurious than ever. The standard set now includes a toast-trimming board and extra-large tray identical with those of the de luxe set. A new style note is supplied by the four appetizer dishes, in gay peasant-pottery colors, all different. The standard tray comes in beautifully grained walnut, and retails at $19.95.

Ideal Variable Speed Transmission Unit .

The Ideal "Select-O-Speed" Transmission, illustrated here, is a new type that is very inexpensive and uses only standard "V" belts. It gives an infinite selection of speeds over a 5 to 1 or greater ratio by a simple movement of a control lever.

The "Select-O-Speed" modernizes old equipment. It is applicable to all machinery that is now operating at a fixed speed when a variable speed is necessary or desirable. Compact and flexible design simplifies its application to new equipment. Several sizes are available up to 7½ hp.

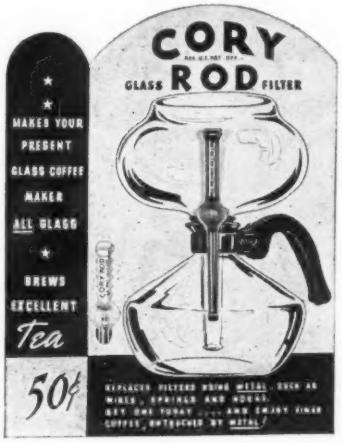
The variation of the speed ratio is made possible by a very ingenious

yet simple arrangement of two interlocking sheaves.

The Ideal "Select-O-Speed" Transmission is manufactured by the Ideal Commutator Dresser Co., Sycamore, Ill.

Cory Glass Filter Rod For Coffee Makers .

The makers of Cory Coffee Brewers have developed an all-glass filter rod for use with glass coffee makers of the vacuum type. The Cory Rod fits the upper glass or funnel of existing glass coffee makers and makes delicious coffee or tea without the need of cloth, paper, springs or hooks in connection with the filter. The Cory Rod sells for 50 cents at retail and the gold and blue display card pictured is given with every order for a dozen or more.



In the display, one of the Rods is set right into the full-size picture of a coffee maker. In the back of the card is provided space for 12 or 24 of the Rods.

Glass Coffee Brewer Corp., Chicago, is the maker of the Cory Rod and will gladly supply full information on request.

Moisture-Resisting Wire Announced By G-E . .

A new braid-finish building wire, having an insulation that is highly resistant to moisture has been announced by the appliance and mer-

OKed FIVE TIMES Everytime!

by
- Underwriters' Lab.
- Architect
- Elec. Contractor
- Inspector
- Owner

QUALITY — every *"Thread-on"* Wire Connector assures a perfect, uniform electrical and mechanical joint, not obtainable with solder and tape. The ¼" molded composition shell prevents shorts and grounds—is unaffected by heat, cold or moisture.

Molded *"Thread-on"* Connectors

DEPENDABLE — tapered spring insert *presses* (does not cut) clean threads into skinned wires, either stranded or solid. Acts as a current-carrying sleeve—gives a strong pressure contact. No corrosion.

LOW COST—*"Thread-on"* Connectors *save money* on every job as they are applied quickly—convenient to use—no need for special tools, solder, tape, etc. Just screw Connector onto skinned wires—that's all!

Conex *"Thread-on"* Connectors

SAFER—No open flame or heat. No scorched woodwork, ceilings or walls.

FULLY APPROVED—Listed by Underwriters' Laboratories, Inc., and other leading electrical authorities everywhere.

Porcelain *"Thread-on"* Connectors

PATENTED—as with any good product, *"Thread-on"* Connectors are the finest in quality, material and workmanship. Therefore, patent No. 1,700,985 is *your* protection in getting the *genuine* product.

MILLIONS IN USE!

BRYANT ELECTRIC CO.
"Bryant"
Bridgeport, Conn.

GENERAL ELECTRIC CO.
"G. E."
Bridgeport, Conn.

IDEAL COMMUTATOR DRESSER CO.
"Ideal" and "Excel"
Sycamore, Illinois

WEISS & BIHELLER MDSE. CORP.
"Simplex" and "Conex"
584 Broadway, New York, N. Y.

WIREMOLD COMPANY
"Wiremold"
Hartford, Conn.

chandise department of the General Electric Company, Bridgeport, Conn. The wire can be obtained in all sizes from No. 14 to 2,000,000 C.M., 600-volt rating. It has the approval of the Underwriters' Laboratories and can be installed in place of lead-covered cable in moist location, as described in article 300, section 3035 of the National Electrical Code.

Its make-up is similar to that of standard grades of building wire except that it is insulated with a moisture-resisting compound. It is also comparable with standard building wires in diameter and weight. All standard braid constructions are available—solid single braid, stranded single braid, duplex solid, duplex stranded, solid double braid, and stranded double braid.

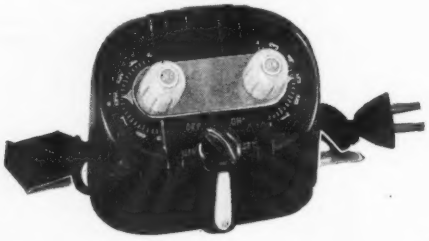
Timing Unit Offered by American Timer Corp. .

A new all-electric appliance control timing unit, designated as the Sentinel, has just been announced by the American Timer Corporation, Geneva, Illinois, manufacturers of interval timers and reminder clocks.

This new device is operated by a self-starting, self-lubricating, synchronous motor. It is designed for operation at 110 volts, 60 cycle a-c but is also available for operation on other currents and frequency. It utilizes pure silver contacts and has a capacity of 15 amperes.

The device is enclosed in an attractive moulded bakelite case available in white, ivory, black or walnut.

Designed for either home or commercial and industrial uses, the timing unit has a wide range of applications. It will automatically turn on any electrical device at any time previously determined; it will automatically turn the device off at any later time determined; or with a single setting it can be made to perform both operations.

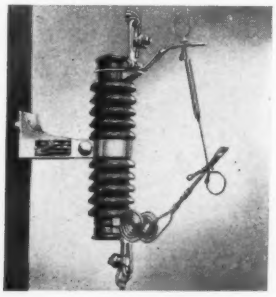


Kearney Trip-O-Link Fuse Switch . . . .

James R. Kearney Corporation, St. Louis, Mo., announces their Trip-O-Link Fuse Switches are now rated 50 amperes, an increased capacity of 100%.

Wedge-type, high pressure, spring contacts provide excellent current conductivity directly to the fuse link. Instead of the conventional fuse cartridge, each individual fuse link incorporates a fuse tube—accordingly with each refusing a new cartridge is supplied.

Extensive laboratory tests and service records show exceptionally high interrupting capacity with complete safety and positive performance even under adverse weather conditions.



Washington Institute Closes Successful Campaign . . .

(*Continued from page* 44)

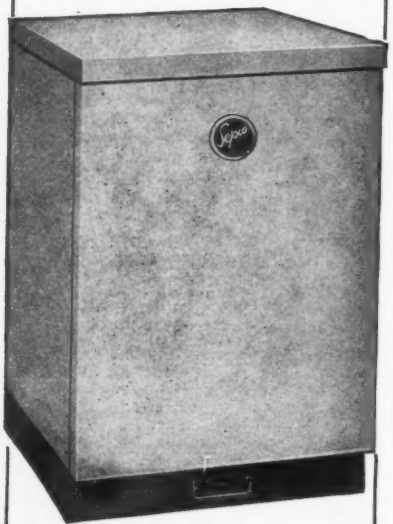
tors was not only filled but exceeded. Over 3,800 electric refrigerators were sold at retail during the twelve weeks—well over $500,000 at retail prices. Almost 50 per cent of this dollar volume consisted of 1938 model refrigerators, for which the average price was $179. Of the 1938 boxes, 31 per cent replaced old mechanical refrigerators.

The Institute is urging all distributor and dealer members to continue to stress the replacement idea during the next several months.

As its share in following up the successful drive, the Potomac Electric Power Company is now conducting a direct mail campaign to 20,000 owners of electric refrigerators, five years old or over. The pieces are die-cut illustrations of electric refrigerators and carry the slogan, "Look at Your Refrigerator." Each of the four pieces stresses a special feature of modern refrigerators such as: safety zone protection — always below 50°; greater ice cube capacity; faster freezing and cold control; greater shelf space and flexible shelf area.

The Electric Institute participation in trade-in allowances on an equal basis with the dealer, provided the allowance does not exceed 10 per cent of the list price of the new box, will be continued. This policy is believed to contribute to the elimination of trade-in abuses arising through replacement sales.

SEPCO
TABLE TOP MODEL



with Porcelain FRONT as well as TOP—to permanently match other kitchen appliances.

AUTOMATIC ELECTRIC HEATER CO., Inc.
Pottstown, Pa.
Southern Division Headquarters:
P. O. Box 1707. Birmingham, Ala.

You'll enjoy cool, restful comfort in the hottest weather at Hotel Mayfair. Each room has guest-controlled air conditioning, private bath, radio and other modern features. Three air-conditioned restaurants.

50% of all rooms $3.50 or less, single — $5.00 or less, double.

"Downtown At Your Doorstep"

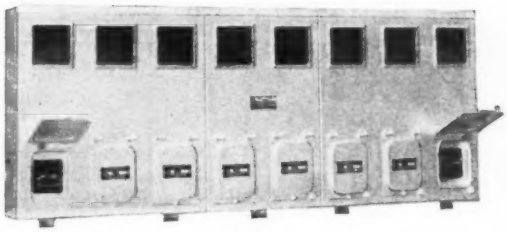
HOTEL
Mayfair
EIGHTH AND ST. CHARLES • ST. LOUIS

HOTEL LENNOX ONE BLOCK OVER—SAME MANAGEMENT

New Developments in GANG METERING

Every feature of best engineering practice, backed by over a quarter of a century of electrical contracting experience, is built into the Walker line. Code requirements are strictly met, and customer satisfaction is not an ideal but an actuality.

Walker engineers are equipped to handle any problem of electrical installation regardless of size. Special cabinets and boxes built to your specifications or designed by our own engineers. Tell us your problems.

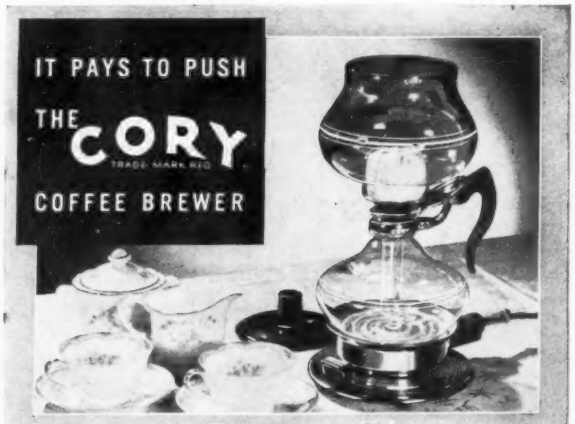


Weatherproof 8 Gang meter and switch inclosure. Cat. No. W-700-8. Made of Steel or Aluminum. The customer's switch can be either a circuit breaker or pullout type switch.

WALKER ELECTRICAL CO.
ATLANTA, GEORGIA

EXTRA SALES FEATURES—the extra features of the Hamilton Beach food mixer give you extra selling points—easier sales.
FREE DEALER HELPS—Complete—attractive. Furnished *free on request.*
WHOLESALER - RETAILER POLICY—distributed only through established wholesalers.
Order Hamilton Beach food mixers from your wholesaler. Write us for *free* dealer helps.
HAMILTON BEACH CO., Racine, Wis.
Division of Scovill Manufacturing Co.

HAMILTON BEACH FOOD MIXER



More Speed! More Beauty!
Brews a Better Cup of Coffee

ONLY the CORY has the remarkable "Fast-Flo" Filter. It limits contact of water and finely ground coffee to 3 minutes . . . giving you just the rich, mellow, true coffee flavor . . . without bitterness from boiling or too long steeping. *No metal touches the coffee.*

Only the CORY gives all these Features

1. "Fast-Flo" Filter
2. Bakelite Funnel Holder
3. Hinged Decanter Cover
4. Beautiful Platinum Decoration
5. 2-Heat Electric Units (Hi-Low)
6. Formed (No-Spatter) Pouring Lip
7. Easy Grip Handles
8. Bakelite Coffee Measure
9. Heat-resisting Glass by CORNING.

Latest catalog showing all models gladly mailed

GLASS COFFEE BREWER CORP.
325 North Wells Street, Chicago, Illinois

TORK CLOCKS
for
Window Lighting, Signs, Heating, Ventilating and Air Conditioning.
Portable Models for Radios and Cookers
$9.75 and up
WRITE FOR BULLETINS

W. H. Berry, Jr.
88 Pryor St., S. W. Atlanta, Ga.
The Tork Clock Co., Inc., Mount Vernon, New York

Wound Core Transformers Offer Unique Features . .

(*Continued from page* 29)

complished without setting up any stresses in the core by a machine which tightly binds each core around the coils into its original pre-wound spiral form and size with the turns in the same sequence.

Both cores are permanently held in shape around the coils by spot welds, and the core and coil unit is then ready for clamping, treating, assembly in the transformer tank.

Because the structure of the core and coil unit is inherently solid and self-supporting, the clamp is of light steel and actually serves more as a cradle and a support for the leads, rather than as a clamp of the type needed with other type transformers.

The wound core distribution transformer is appreciably lighter than a transformer with the conventional core arrangement, due to the more efficient use of materials.

Arrangement and design of the coils is such that good transient voltage distribution is achieved. And since the cores closely surround the coils, the coils are firmly fixed against mechanical forces of short circuit.

Electrostatic Filters Fill Industry Need

(*Continued from page* 24)

for months. The usual sooty smear surrounding warm air outlets is eliminated. Annual wallpaper cleaning is not required. All because the infinitesimally small particles which cause the greasy type of dirt in buildings and homes had not been permitted to settle on walls and furnishings.

Although the Field Building, Chicago, installation is the pioneer installation for office buildings, Westinghouse engineers have found applications for the process, other than those for homes and offices. It will soon provide clean air in one of the chemical laboratories of the Bureau of Standards in Washington; it is being considered for hospitals; in an automatic telephone exchange it prevents dust from collecting on switch contacts and failures from this cause have been reduced 60 per cent; one industrial application now cleans the gas for steel mill furnaces to prevent the nozzles of the burners from clogging with foreign matter; art galleries may use it as a protective measure to prevent dirt scum from deteriorating precious paintings and sculpture.

Current costs to operate the equipment are low. A unit for the average home requires about as much current as is consumed by a 60 watt lamp.

Kitchen Remodeling—A Business In Itself . .

(*Continued from page* 13)

are building new homes or remodeling old ones. With model rooms right on the premises, we can explain better all the details of the equipment. Thus they have a much better idea of the final result, which insures their future satisfaction when their home or remodeling is completed.

"We employ several outside salesmen, who work on a drawing account against customary commissions. We prefer men who have sold ranges and refrigerators although some of our best men are those who have had some architectural or structural experience.

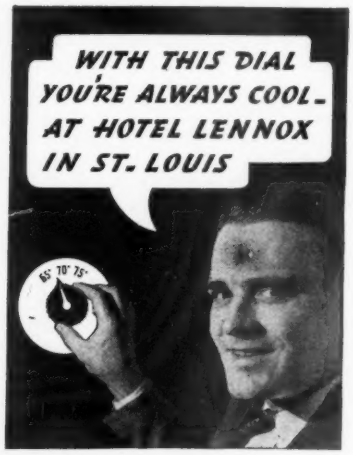
"We have found that the salesman who can visualize a layout for a remodeled kitchen; who can make proper recommendations in the field; and who can measure up the kitchen accurately and locate all the doors, windows and plumbing outlets properly on the sketch; will have the least difficulty in closing sales.

"Prospects for our salesmen are obtained from building trade reports and from contacts with architects and builders; from "walk-in" customers who have been attracted by advertisements and displays; and from satisfied customers for whom we have made installations."

SALES REPRESENTATIVES WANTED

Commission Salesmen, now calling on electric contractors and electricians to sell new BX Cable Cutter. Best tool on the market. Give full details in letter stating territory covered and companies now represented. All territories open. Address Box 61, care ELECTRICAL SOUTH, Atlanta, Georgia.

Crapo
GALVANIZED PRODUCTS
Steel Strand
Telephone and Telegraph Wire
Where strains and stresses are heaviest, where corrosion takes its greatest toll, Crapo Galvanized Steel Strand and Telephone Wire constantly are proving their outstanding superiority. The heavy, tenaciously bonded zinc coating, maximum tensile strength and correct ductility insure longer life and lower maintenance cost. Insist upon Crapo Galvanized Products for better performance under all conditions! Ask your Jobber or write direct!
INDIANA STEEL & WIRE CO.
MUNCIE, ◆ INDIANA
Crapo Galvanized Strand and Telephone Wire can be obtained readily in all standard grades and sizes.
INDIANA STEEL & WIRE CO.
MUNCIE, IND.



For cool, refreshing comfort, day or night, regardless of summer heat stay at Hotel Lennox. Guest-controlled air conditioning, tub and shower bath, radio and other modern features in each room. Two air-conditioned restaurants.

50% of all rooms $3.50 or less, single — $5.00 or less, double.

"Downtown At Your Doorstep"

HOTEL Lennox

NINTH AND WASHINGTON • ST. LOUIS

HOTEL MAYFAIR ONE BLOCK OVER— SAME MANAGEMENT

Get Way Ahead

. . . of the Field

With COOLAIR

It will pay you . . . . . and pay you plenty . . . . . to push Coolair systems right now, while your prospects are sweltering in August heat. Get way ahead of competition and add to your summer profits with Coolair, the ten-year leader in the ventilating and cooling field.

Profit with Coolair now. Write today for free pocket-size manual chock-full of sales and installation suggestions.

Coolair Ventilating and Cooling Systems

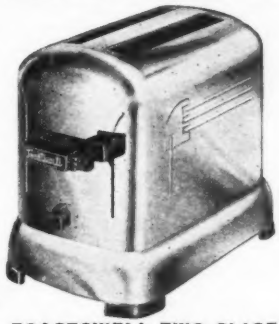
AMERICAN COOLAIR CORPORATION

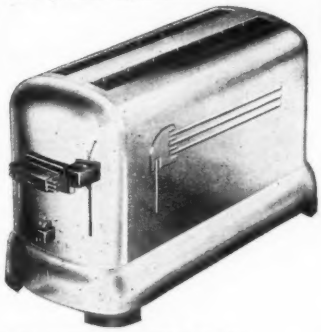
Manufacturers . . . . JACKSONVILLE, FLORIDA

The New Toastswell Matched Line IS NOW READY!

The Most Modern—Fastest Selling—Long Profit Line of Electrical Appliances Ever Offered—Backed Up By a Success-Proven Design and a Sales Increase of Over 100%.

Think of it, Toastswell now offers you a smart new combination automatic sandwich toaster and a stunning new automatic waffle baker designed to perfectly match the now famous, ultra-modern Toastswell automatic two slice and four slice bread toasters which have increased dealer's sales beyond their greatest expectations.





TOASTSWELL TWO SLICE AUTOMATIC TOASTER $10.95

Equipped with Time Master Control that assures uniform toast at all times, and low heat feature that keeps toast hot and makes delicious melba toast.

Non-automatic toasters and tray sets also available.

TOASTSWELL AUTOMATIC COMBINATION SANDWICH TOASTER $7.95

Non-automatic sandwich toasters and tray sets also available.

TOASTSWELL AUTOMATIC WAFFLE BAKER $9.95

Beautiful tray set with syrup and batter pitchers also available.

TOASTSWELL FOUR SLICE AUTOMATIC TOASTER $15.00

Toasts four slices of bread on both sides at one time. Same mechanical features as two slice toaster.

Non-automatic toasters and tray sets also available.

● And best of all Toastswell is offering, for a limited time only, two big extra profit deals that you can't afford to miss.

● Write today for complete information on the new matched Toastswell line and the two big profit deals and join the thousands of Toastswell dealers who are increasing their sales and profits with Toastswell every day!

UTILITY ELECTRIC COMPANY

624 Tower Grove Ave., St. Louis, Mo.

DINKLER HOTELS

Landmarks of Southern Friendliness

You will find the Dinkler Hotels located conveniently on all principal highways in the South . . . in each you will find a cordial welcome by a cheerful, friendly staff. The rooms are large and well ventilated . . . each with private bath and radio . . . garage connections are convenient and popular prices prevail in dining rooms and coffee shops.

★ The ANSLEY IN ATLANTA, GA.
★ The SAVANNAH IN SAVANNAH, GA.
★ The ST. CHARLES IN NEW ORLEANS, LA.
★ The ANDREW JACKSON IN NASHVILLE, TENN.
★ The JEFFERSON DAVIS IN MONTGOMERY, ALA.
★ The TUTWILER IN BIRMINGHAM, ALA.
★ The O. HENRY IN GREENSBORO, N. C.

MODERATE RATES

ILLUSTRATED FOLDERS SENT UPON REQUEST

DINKLER HOTELS,

CARLING DINKLER, President and General Manager

OPERATING 3000 ROOMS IN SOUTHERN HOTELS

HERE'S YOUR HOTEL in Cleveland

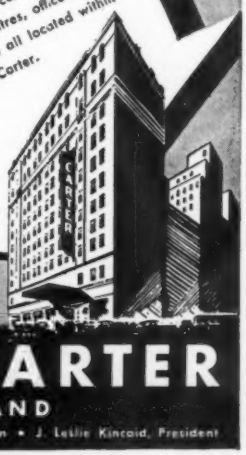
There's a big, outside room—with private bath and circulating ice water—set aside for you. You'll like the delicious meals served in our four restaurants. You're right in the center of things, too. The leading stores, theatres, office buildings, and Union Depot, are all located within a five block radius of the Carter.

RATES

Single: $2.75 to $6.00

Double: $4.00 to $8.00

600 ROOMS



HOTEL CARTER

CLEVELAND

Affiliated with American Hotels Corporation • J. Leslie Kincaid, President

Index of ADVERTISERS

The Advertisers' Index is published as a convenience, and not as a part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

A

All-Steel Equip. Co., Inc. *
Aluminum Co. of America *
American Coolair Corp. 47
Arrow-Hart & Hegeman Electric Co. *
Associated Business Papers, Inc. 39
Automatic Electric Heater Co., Inc. 44
Automatic Electric Mfg. Co. 48

B

Bryant Electric Co. 43
Burndy Engineering Co., Inc. *
Bussman Mfg. Co. 1

C

Carpenter Mfg. Co. *
Colts Patent Fire Arms Mfg. Co. *
Commercial Credit Co. *
Crescent Insulated Wire & Cable Co., Inc. 4

D

Dallas Engineering Corp. 38

E

Edison G E Appliance Co., Inc. *
Electric Vacuum Cleaner Co., Inc. *

G

General Cable Co. *
General Electric Company (Lamps) *
General Electric Co. (Wiring Materials) 43 and Back Cover
Glass Coffee Brewer Corp. 45
Graybar Electric Co. *
Greenlee Tool Co. 40

H

Hamilton Beach Mfg. Co. 45
Hazard Insulated Wire Works Inside Front Cover
Hotel Carter 47
Hotels Dinkler 47
Hotel Lenox 44 and 46
Hotel Mayfair 44 and 46
Hunter Fan & Ventilating Co., Inc. Front Cover

I

Ideal Commutator Dresser Co. 43
Indiana Steel & Wire Co. 46
International Nickel Co. *

L

Linemen Protector Co. *

M

McGraw Electric Co. 14 and 15

N

Noblitt-Sparks Industries, Inc. 21

O

Okonite Co. Inside Front Cover

P

Potter & Rayfield, Inc. *
Premier Division *
Pleasantaire Corp. *

R

Rogers, C. B. *

S

Sangamo Electric Co. 42
Silex Co. *
Square D Company Inside Back Cover
Standard Electric Mfg. Corp. *
Sterling Reflector Co. *
Superior Switchboard & Device Co. 41

T

Tork Clock Co., Inc. 45
Trumbull Electric Mfg. Co. 11

U

Utility Electric Co. 47

W

Wadsworth Elec. Mfg. Co. *
Walker Electrical Co. 45
Weiss & Biheller Mdse. Corp. 43
Westinghouse Electric & Mfg. Co. (Distribution Transformers) 2
Westinghouse Electric & Mfg. Co. (Safety Switches) *
Wiegand Co., Edwin L. 38
Wiremold Co. 43

Y

Youngstown Sheet & Tube Co. *

WRITE for information on . . . . .

☐ Time Switches ☐ Process Timers ☐ Interval Timers ☐ Flashers (All Types)
☐ Program Time Switches ☐ Photo Engraving Timer ☐ Motor Reverser Switch ☐ Delayed Action Relays
☐ Fire Drill Signal ☐ Defrosting Switches ☐ Heating Plant Controls ☐ Linotype Time Switches

Automatic Electric Mfg. Co., Mankato, Minnesota